Journal of FORESTRY

FEBRUARY 1951

Volume 49
Number 2

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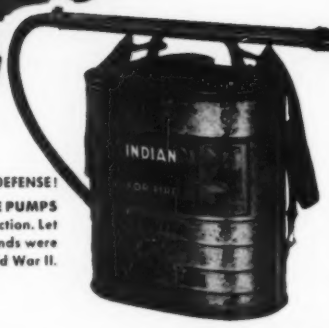

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The JOURNAL OF FORESTRY, established in 1917, is the official organ of the Society of American Foresters, but the Society assumes no responsibility for the statements and opinions expressed by contributors.

Publication office, 825 Mills Building, 17th Street at Pennsylvania Avenue N. W., Washington 6, D. C. Address all correspondence concerning editorial or business matters to JOURNAL OF FORESTRY, 825 Mills Building, 17th Street at Pennsylvania Avenue N. W., Washington 6, D. C. Published monthly. Subscriptions, $6 per year; single copies, 60 cents. Missing numbers will be replaced without charge provided claim is made within thirty days after date of the following issue.

The editors are not responsible for loss or damage of manuscripts and photographs while in transit or in their possession. All material submitted for publication should be accompanied by return postage.

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Journal of Forestry

Official Organ of the Society of American Foresters

Golden Anniversary Meeting Draws Record Attendance

Over 1,250 members and guests, an attendance record, registered at the Golden Anniversary Meeting of the Society of American Foresters, held in the Mayflower Hotel in Washington, D. C., on December 13-16, 1950. Attendance at the 1949 S.A.F. annual meeting in Seattle was 800, while 600 persons attended the 1948 meeting in Boston.

Theme of the Golden Anniversary Meeting was "American Forestry in the Twentieth Century." The first general session on December 14, at which M. H. Humphrey presided, was devoted to the consideration of forestry accomplishments during the first half of the century. The final general session on December 16, at which Charles H. Flory presided, had as its general subject "The Society Looks Ahead."

General session speakers and their topics were: Samuel T. Dana, "The Growth of Forestry in the Past Half-Century"; Raphael Zon, "Forestry Mistakes and What They Have Taught Us"; John D. B. Harrison, "American Forestry in a World Perspective"; William L. Hall, "Fifty Years of the Society"; George Banzhaf, "The Relation of Forestry to Our Wood Supply"; Carl A. Rishell, "Test Tube Potentials"; Tom Wallace, "Human Values of Forests"; A. R. Croft and Marvin Hoover, "The Relation of Forests to Our Water Supply"; and Lyle F. Watts, "The Role of Forests and Foresters in Our National Economy." The papers will be published in the JOURNAL.

For the fiftieth anniversary dinner in the Mayflower Ballroom, attended by 750, on December 15, R. E. McArdle served as toastmaster. Tom Gill presented "Our Family Album," an account of the development of the profession illustrated with photographs of prominent foresters in early surrounding. A candle lighting epilogue, "The Passing Years," was produced and directed by W. W. Bergoffen as a climax to the banquet program. A dance followed, sponsored by the three host Sections—the Allegheny, Appalachian, and Washington.

President Charles F. Evans presents Schlich Medal to Ralph Sheldon Hosmer; R. E. McArdle toastmaster, and Tom Gill, banquet speaker at Golden Anniversary meeting.

President Charles F. Evans presented the Sir William Schlich Memorial Medal to Ralph Sheldon Hosmer, charter member, Fellow and past president of the Society. He also announced the premier presentation of the Gifford Pinchot Medal, awarded in absentia to Henry Solon Graves, also a charter member, Fellow, and past president of the Society. A specially prepared and inscribed plaeque was presented to William L. Hall, the third living charter member and a Fellow and past president.

Division Meetings

Many of the Society's ten technical Divisions devoted part of their sessions to a recapitulation of happenings during the past 50 years and to prognostications of the future. Divisions holding all-day sessions were the Divisions of Education, Private Forestry, Silviculture, Public Relations, Forest Recreation, Range Management, Watershed Management, and Forest-Wildlife Management, while the Divisions of Forest Economics and Forest Products held half day sessions. Most of the papers will be published in the JOURNAL.

Related Meetings

Business meetings of the Society's Council, Section delegates, the Council of Forestry School Executives, Association of Consulting Foresters, and International Society of Tropical Foresters, were held in conjunction with the meeting as were reunions of alumni of many of the forestry schools. Another feature was the showing of recent forestry movies.

Ladies activities for the 250 who registered included a tea at the home of Mrs. Gifford Pinchot and a conducted tour to Mount Vernon.

George R. Phillips served as general chairman of the meeting.

For further information about this historic meeting, consult the Society Affairs department of this issue.

Outstanding Professional Contributions Recognized

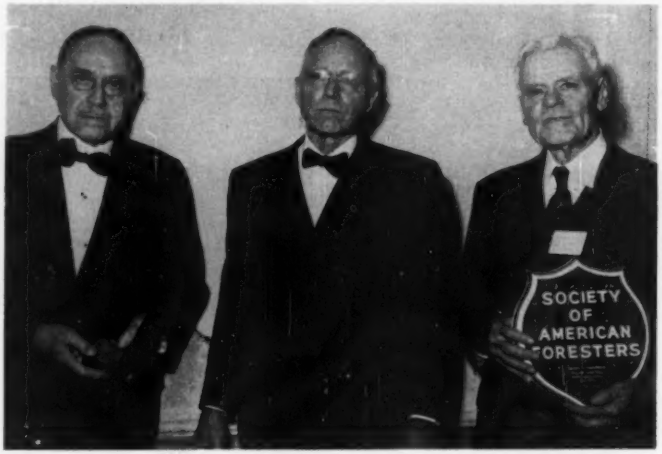
Foresters Receive Honors at Golden Anniversary Meeting
December 15, 1950

Announcement of the Award of the Gifford Pinchot Medal to Henry Solon Graves by Charles F. Evans, President Society of American Foresters

"As president of the Society of American Foresters, I have the honor to announce the first presentation of the Gifford Pinchot Medal. No act during my term of office gives me greater satisfaction than this occasion. Yet it is a satisfaction mingled with sadness, for the eminent recipient of this award is not with us. Because of his illness, I shall make the announcement *in absentia*.

"First, a word about the great American in whose memory this medal has been created. Gifford Pinchot was a many-sided man: forester, conservationist, university lecturer, public administrator, governor, traveler, author, sportsman, and social planner. But whatever role destiny dictated he should play on the broad stage of national and world events, he was first, last, and always a forester.

"The earliest United States citizen to become a professionally trained forester, he, perhaps more than any other individual, was the architect of the American conservation movement. He was the founder and first president of the Society of American Foresters, an office which he held for eight years. The regular monthly meetings of the Society were held in the Pinchot home for years, a custom kept alive by Mrs. Pinchot who annually is hostess to our Washington Section for a traditional gingerbread and baked apple party. As if that were not enough, Mrs. Pinchot has displayed another act of friendship and interest toward forestry. She has made available to the Society a medal of exquisite beauty and superb workmanship. To be known as the Gifford Pinchot medal, it will be periodically awarded by the Council of the Society in recognition of eminent service to forestry, or to any phase of the broad field of natural resource conservation, in the public interest.



Ralph S. Hosmer, recipient of Sir William Schlich Memorial Medal; Charles F. Evans, president, Society of American Foresters; William L. Hall, recipient of S.A.F. Plaque.

"Mr. Pinchot's life long friend, his companion on many a forest trail, and his good right arm in numerous righteous battles for conservation was the forester he affectionately called Harry. To us he is Henry Solon Graves; former chief of the U. S. Forest Service; dean emeritus of the Yale University School of Forestry, charter member, past president, and Fellow of the Society of American Foresters.

"Deep in my heart I have the conviction that, were Mr. Pinchot still with us, nothing would please him more than to see Harry Graves receive this honor. I am equally convinced that, could Mr. Graves have been with us tonight, no honor within the ability of the Society to bestow would give him greater pleasure. Consequently, I am in the unique position of performing an act which my sense of the rightness and fitness of things assures me would be greatly pleasing to two absent leaders of our profession whose very names we love and revere.

"Thus, in behalf of the Society of American Foresters, and with gratitude to Mrs. Pinchot, I herewith announce the first award of the Gifford Pinchot Medal to Henry Solon Graves, the medal to be delivered to him next week."

Presentation of the Sir William Schlich Memorial Medal to Ralph Sheldon Hosmer by Charles F. Evans

"In recognition of the distinguished services to forestry of Sir William Schlich (1840-1925), inspector general of forests in India and later professor of forestry at the University of Oxford, his friends throughout the English speaking world began in 1926 to raise funds for a suitable memorial.

"The Sir William Schlich Memorial Foundation was established. Its trust funds are in the custody of the Empire Forestry Association, and the annual proceeds are awarded in rotation to the several

forestry agencies throughout the British Empire and the United States.

"Foresters in the United States contributed to the Foundation's trust fund, for Sir William had been an Honorary Member of the Society of American Foresters; and his monumental *Manual of Forestry*, published in 1889, contributed to the technique and practice of forestry in America as well as abroad.

"The first award of funds was made to the United States in 1932, with the Society of American Foresters designated as custodian of the award. The Council of the Society used the proceeds to provide for the design and casting of a medal—the Sir William Schlich Memorial Medal—to be presented from time to time to some individual or organization in recognition of noteworthy achievement in the advancement of forestry.

"The first award of the Sir William Schlich Memorial Medal was made to President Franklin Delano Roosevelt in 1935 for distinguished services in forest conservation. The second award was made to Gifford Pinchot, founder and first president of the Society of American Foresters, during our 40th anniversary meeting in 1940. Henry Solon Graves was the third recipient of the medal in 1944, and it has twice been awarded since that year: to William B. Greeley in 1946 and to Herman H. Chapman in 1948.

"In behalf of the Society of American Foresters I now have the honor of presenting the sixth award of the Sir William Schlich Medal to Ralph Sheldon Hosmer of Ithaca, New York.

"A graduate in forestry of Yale University, Ralph Hosmer served with distinction as a field assistant in the old Bureau of Forestry (now the U. S. Forest Service) from 1898 to 1903, as superintendent of forestry in Hawaii during the period 1904-1914, and as professor of forestry and head of the Department of Forestry at Cornell University from 1914 to 1942, when he became professor emeritus. A charter member of the Society of American Foresters, he has served the profession well and faithfully as president in 1923, as author of the historical summaries of the Society published in 1940 and 1950, and as chairman of the Society's Committee on International Relations. He was elected a Fellow in 1932.

"Professor Hosmer, accept with assurances of our regard and affection this Sir William Schlich medal, awarded you by the Council of the Society of American Foresters for your eminent service to forestry."

Presentation of the S.A.F. Plaque to William Logan Hall by Charles F. Evans

"One of the common beliefs about foresters is that they are clean-living, virile, upright men. Another is that, because they spend most of their lives in God's great out-of-doors, they stay younger in body and spirit than the general run of men. I am about to show you living proof of that belief.

"Among the seven founding members of the Society of American Foresters was William L. Hall. Having done graduate work in forestry and horticulture as early as 1899, he entered the old Division of Forestry in the U.S. Department of Agriculture and was put in charge of forest planting. He stayed with the Forest Service for twenty years, rising constantly to positions of greater responsibility, taking time out only to serve as a major of engineers in the first world war.

"In 1919 he entered private forestry practice, operating his own timberland and serving as consulting forester for numerous lumber and paper companies. Today William L. Hall of Hot Springs, Arkansas, is one of our profession's convincing exponents of successful private forestry. But in demonstrating the application of the profit motive to private forest management, he has ever mantained active participation in professional affairs. His career has been characterized by a high sense of professional ethics, technical competence, and real accomplishment. As such, he has been a splendid inspiration, not alone to his contemporaries, but to the younger generation of foresters as well.

"But he did more than help establish the Society; he also served as a member of the Council, as treasurer, and as president. In recognition of his achievements, he was elected a Fellow in 1939, the highest membership honor within the power of the Society to bestow.

"On this Golden Anniversary, it is fitting that recognition be given to this woods forester by the profession to which he himself has given so much of his talents and energies.

"William Logan Hall, in behalf of the Society of American Foresters I have the honor to present you with this plaque made especially for you and for this occasion. It is in the exact shape and color of our beloved Society emblem. May its presence in your home or office be a constant reminder of the affection and esteem which we, your friends and fellow foresters hold in our hearts for you."

The Growth of Forestry in the Past Half Century[1]

Samuel T. Dana
Dean, School of Natural Resources, University of Michigan, Ann Arbor

PRACTICALLY the entire development of forestry in the United States has taken place in the past half century. It would be easy to cite statistics and laws that would make an impressive showing of its growth during that period. For the purposes of this discussion I believe that it will be preferable to identify and appraise the significance of a few of the major developments, even though this will result in a somewhat sketchy presentation. Figures, dates, and legislative details can be found in readily available publications, including our own Society's history of forestry from 1900 to 1950.

To me, the most striking feature of the period is the spread of forestry from the top down and from the center out to all parts of the country and all classes of ownership. That spread has, of course, not been all-inclusive, but it has gone farther and holds out more promise for the future than many of us ten years ago would have thought possible.

Federal Activities

During the first quarter of the present century, progress in forestry was centered chiefly in the federal government, and more specifically in the national forests. Their establishment reversed the previous policy of practically unrestricted disposal of the public lands, and their administration on a non-political, technical basis provided the initial impetus toward genuine forest management. This impetus continued with the enlargement of the national forest system by purchase, and with the application of forestry principles to the management of Indian reservations and Oregon and California revested grant lands.

Federal leadership has also been conspicuous in other fields. Much of the progress in fire control and timber management on state and private lands is the result of cooperative effort. The patterns established by the Clarke-McNary Act and the Norris-Doxey Act are often cited as models of the form which federal cooperation with other agencies should take. Research by the Forest Service through its regional forest experiment stations and the Forest Products Laboratory at Madison, Wisc., as well as by other federal agencies has helped to provide the indispensable foundation for sound forest practice and efficient wood utilization by all forest owners and all wood-using industries. In the field of farm forestry, the Soil Conservation Service has also played an important part in identifying land primarily valuable for forest production and in stimulating its improved management.

Forestry in the States

The establishment of many new state departments of forestry, and increased activity on the part of those already in existence, were promising features of the Roosevelt-Pinchot era. For various reasons, however, the fulfillment of the promise was considerably delayed. The organization of the Association of State Foresters in the early nineteen twenties paved the way for a new advance, and in the last two decades state departments of forestry have really come of age.

Their increase in number, scope, and effectiveness has been one of the major factors in the growth of forestry. Fire control, essentially a state responsibility except on federal lands, has been strengthened to the point where nearly 90 percent of our entire forest area is under organized protection. The management of state forests has greatly improved. Planting stock of high quality is being produced in increasing amounts. Private owners are being helped in the management and utilization of their forests right on the ground as well as through lectures and bulletins. Participation of the federal government in many of these activities demonstrates the feasibility and effectiveness of cooperative relationships which place local administration of joint programs in the hands of the states.

Within the last decade eleven states have enacted legislation dealing with cutting practice. This legislation varies all the way from laws which merely encourage private owners to handle their lands under management plans prepared by a representative of the state, to laws which require owners to follow cutting standards established by state or regional agencies, with penalities for non-compliance. There is criticism of these laws on the grounds that the standards which they set are too low and that inadequate provision is made for their enforcement. In evaluating this criticism it must be remembered that the laws in question aim at education as well as regulation, and that they constitute a reversal of the laissez-faire policy that has previously prevailed with respect to the management of private forests. It is also significant that the legislation has generally had the backing of those to whom it is applied, and in some instances has actually been initiated by them.

Taken as a whole, the states have advanced from a position of relative insignificance in the forestry picture to one of major influence. Many of them now recognize their responsibility for assuring the wise use of their forest resources, and have organized departments of forestry with the financial and legislative support needed to discharge that responsibility effectively. Today the states not only stand on their own feet, but more than hold their own in any disagreement with federal agencies.

Progress by Private Owners

Widespread activity in forestry by private owners is a much more recent development. Governmental efforts in the early years of the

[1] Paper given at the annual meeting, Society of American Foresters, Washington, D. C., December 14, 1950.

century to stimulate interest brought few results, for economic reasons that are more obvious now than they were then. Timber was too abundant, and the prospect of a possible future shortage too far removed, for pleas or threats to have much influence on action.

Chief Forester Graves summed up the situation as it looked to him in 1919 as follows: "We have been discussing these problems for many years, but we have made little progress in securing the right handling of private lands. . . . I am ready to advocate a policy more far-reaching in all respects than has generally been offered. I would afford whatever public assistance is needed to make possible the conservative handling of our forests, and I would then make fire protection, conservative production of lumber, and right methods of removal a matter of requirement, with such public direction and control as is necessary to realize the aims desired by the public."

This was the opening gun in the campaign, which is still continuing, to bring about public control of cutting on privately owned forest lands, and at the same time to strengthen cooperation between public and private agencies. Notable steps have been taken in both directions, but the remarkable advance in private forestry during the last decade, particularly among the larger owners, has been due chiefly to other factors than governmental threats or doles. Private owners have become genuinely interested in forestry because they have been convinced that it is both necessary and profitable. Waning supplies of raw materials, a more favorable economic climate, and advances in technology are cogent arguments in its favor.

The change in attitude has come about so suddenly, and on the whole so unexpectedly, as to raise doubt in many people's minds as to its permanence. They remember that as recently as 1934 the representatives of industry at the second conference on Article X of the Lumber Code endorsed the proposal advanced by the Forest Service in the Copeland Report that public agencies acquire by purchase an additional 224 million acres of forest land. Times were not prosperous; stumpage prices were not rising rapidly enough to offset carrying charges; some owners were even inclined to blame the government for having allowed so much of the public domain to pass into private hands. Ten years later the current was running so strongly the other way that private owners generally not only wanted to retain what lands they already held but even began to question whether public ownership had not already gone too far.

What would happen in case of another severe depression is of course uncertain. Some retrenchment in expenditures for private forestry is likely, but any wholesale abandonment of going programs by the larger owners seems much less so. The stakes are too high. Concerns with heavy capital investments can no longer afford to take a chance on picking up their raw material in the open market. To a considerable extent they must grow it themselves.

There is no likelihood that the timber-growing and wood-using industries will continue unprofitable for any great length of time unless the entire system of private enterprise should unexpectedly go on the rocks. Assuming that this will not happen, forestry should prove more profitable and consequently more attractive to private owners in the future than today. The approaching end of the supply of virgin timber means that we shall soon have to depend chiefly on second-growth timber, the quantity and quality of which can be materially influenced by man. Advances in wood technology are expanding the market for wood and are making possible the use of species, sizes, and grades hitherto of little or no value. This is conspicuously true in the pulp industry, where the semi-chemical process is having revolutionary results; but other chemical products such as sugar, alcohol, yeast, and lignin derivatives are opening new uses for low-grade material, as are also improvements in the construction and properties of laminated wood products.

Moreover, the extent to which private owners are engaging in organized efforts to spread the practice of forestry, and the enthusiasm and effectiveness with which these efforts are being prosecuted, augur well not only for continued but for accelerating progress. The Tree Farm System, the Keep Green Movement, and the Trees for America Program, all initiated and largely administered by private enterprise, are having a cumulative effect of increasing significance. American Forest Products Industries, Inc. is conducting an educational campaign in industry, in schools, and among the general public that overshadows that of either the federal or state governments. Many other national and regional industrial organizations are pushing for better forest practice among their members, and are supporting or opposing state and federal legislation as it seems to them good or bad. Private forestry, in spite of the large area still being poorly managed, appears at last to be definitely on the march.

Trend toward Decentralization

In the past half century the growth of forestry has been downward and outward from the national forests to state forests and to individual holdings of private owners in all parts of the country. Federal activities still loom large, but they no longer monopolize or even dominate the scene. Today, state and private activities, which only thirty years ago were relatively insignificant, occupy a prominent place in the picture.

Industry generally is at present much perturbed over what it regards as an increasing and dangerous tendency toward over-centralization of power in the federal government. Whatever the tendency may be in other fields, it seems clear that in forestry the trend is in the other direction. Expansion of national forests has virtually ceased, with even the rounding out of existing purchase units proceeding at a snail's pace. Such control as is exercised in connection with grants-in-aid is not onerous and

is generally recognized as salutary. Federal control over cutting on private lands, whether direct or indirect, seems more remote than ever. State and private initiative, on the other hand, are growing steadily. It is hard to detect any trend toward socialism in the recent history of forestry in the United States, or any likelihood that such a trend will develop if private enterprise demonstrates its willingness and its ability to provide the kind of management required by the public interest.

Status of Forest Management

Fifty years ago the area of commercial forest which was being intentionally handled for continuous forest production was negligible. Today the area under fair to excellent management amounts to nearly half the total. Over two-thirds of the area held by large private owners falls into this classification, but less than a third of that held by small owners; and in the latter group only 4 percent is under management that can be classed as good or better.

These figures certainly give no cause for complacency. On the other hand, it is encouraging that private forestry has made such a good start in the short space of ten or fifteen years; that additional areas are steadily being placed under management; that special effort is being made both by the federal and state governments and by industrial interests (including the banks and the railroads) to reach the smaller owners; and that the services of consulting foresters are being increasingly used.

By far the greatest progress has been in fire control, which has grown markedly in effectiveness as well as in area covered. Reduction in number of man-caused fires, however, has not kept pace with the amazing advances in mechanization and in means of communication. Characteristically, we are more efficient in technology than in human relations. We have also done less well on the urgent problem of controlling losses from insects and diseases. Few persons, if any, will question that losses from these sources are now greater than from fire. Yet only partial success has been attained in controlling epidemics, and still less in preventing their outbreak.

Rules of Forest Practice

Many attempts have been made to place silvicultural practices on a firmer foundation by the formulation of rules intended for rather general application. Thus, the U. S. Forest Service during the twenties issued a series of publications specifying the minimum requirements for maintaining forest production of some sort in all the major forest types throughout the country, and recommending desirable practices for more intensive management. Then came the feverish attempt during N.R.A. days to translate the general mandate for sustained forest production in Article X of the Lumber Code into specific rules of forest practice for individual types and regions. The Supreme Court soon knocked out any legal basis for such rules but did not abolish interest in the subject, particularly among some of the trade associations.

More recently the Forest Service, state legislatures, district boards, departments of forestry, industrial organizations, and local sections of the Society of American Foresters have tried their hand at writing silvicultural prescriptions to cure, or at least to abate, our forest ills. These rules are good so far as they go, but by their very nature they tend to set a relatively low standard and cannot prescribe practices suited to the needs of individual stands. They can be highly useful if recognized as guides. They can be dangerous if regarded as gospel. Well-stocked, fast-growing stands of desirable species and individuals will become the rule rather than the exception only when each stand receives the treatment called for in its particular environment and by its own composition and condition. This happy result is most likely to be achieved on private lands when the owner recognizes that professional advice framed to meet his particular situation is as much needed as in any other business.

Technology, Economics, and Biology

American mechanical genius has been conspicuous in developing improved equipment for use in fire control, in planting, and in felling, bucking, skidding, and transporting logs from the stump to the mill. Many of these developments are so recent that we are still in the process of finding out how to use them most effectively from the standpoint both of economics and silviculture. Particularly promising as a means of promoting greater flexibility and giving greater assurance of permanence in forest management is the increasing tendency toward the construction of permanent road systems that make all parts of a forest property readily and continuingly accessible.

The way in which economic considerations have come to the fore in the thinking of foresters has been one of the most striking developments of the last twenty years. This does not mean that foresters generally have become specialists in economics, business administration, or accountancy. It does mean that they have become conscious of the importance of these fields and have acquired considerable competence in them. This is evidenced by the increasing number of foresters who are occupying positions of executive responsibility in the industrial world. As an example of their increasing influence in matters of policy, it is interesting to note that at a recent meeting of the Michigan Forest Industries Information Committee at Ann Arbor, seven of the sixteen members present were foresters.

The modern emphasis on technology and economics is all to the good provided it does not lead foresters to neglect the biological foundation of their profession. We must have trees before we can make a profit from them, and trees, together with the other plants and the animals that make up the forest, are living beings. In the long run silviculture and forest management will succeed only if those who practice them do so with full knowledge of the biological characteristics of trees and forests, and of both the

biological and physical characteristics of the soil on which they grow. The homage that even foresters often pay to so vague a generality as "selective cutting" is an indication of biological illiteracy.

In the last fifty years we have not attained the knowledge that we need, nor have we used to best advantage what we already know. Too often we carelessly or ignorantly work against nature rather than with her; and in the long run nature always wins. Progress in the biological sciences must keep pace with that in the physical and engineering sciences and the social sciences if forestry is to be effective as a science, an art, and a business. Our heavy losses from insects and diseases are essentially a biological failure. In time, forest entomology and forest pathology should become virtually a part of silviculture, with relatively few epidemics requiring artificial control measures. Studies in forest genetics and in the use of plant hormones, now under way on a small scale, also offer much promise of important advances in silviculture.

Forest Influences

Another field that has been relatively neglected in the first half century of American forestry is that of forest influences. We still know too little of the effect of forests on meteorological conditions, soil conditions, and runoff under the almost innumerable combinations of climate, topography, soil, and forest cover found in different types and regions. Particularly meagre is our knowledge of the effect of different kinds and intensities of logging and grazing on these various factors.

The excellent start toward getting more adequate information which has been made by the U. S. Forest Service at its experimental areas in California, Colorado, and North Carolina, by the Soil Conservation Service, and by a few agricultural experiment stations needs to be greatly expanded. Water is a resource which is so indispensable for so many different purposes, and which at the same time has such destructive potentialities, that it is essential to know the influence of both virgin and cutover forests on its behavior. In cases where water is the major product of a forest, such knowledge is needed for an intelligent answer to two questions. First, what kind of forest management will adequately safeguard the water supply; second, can that kind of management be anticipated under unrestricted private ownership, or is it more likely under public ownership or control?

Social Returns and Costs

The relationship between forests and water is only one illustration of the fact that the way in which a particular forest is handled may have important consequences elsewhere. These consequences may be good or bad. When they are bad—for example, if they involve accelerated erosion, depletion of the water supply, increased floods, destruction of unusually fine scenery, serious shortages of timber, or the creation of ghost towns—they affect adversely other owners and the general public.

These facts have been recognized with varying degrees of emphasis throughout the period we are considering, but no clear-cut policy for dealing with them has yet been established. Since private owners are normally interested only in the direct financial returns obtainable from their forest properties, it is probable that any other results will be incidental. Public owners are more likely to recognize other than strictly timber values in the preparation of management plans, but may prove less efficient managers from the purely economic point of view.

The problem of how to maximize social returns and to minimize social costs still remains to be solved. Experience has shown that it is an important one, and that private ownership must be supplemented by a certain amount of public ownership, public control, and public cooperation in finding a satisfactory solution. The real question is how much of each should there be, of what kind, and where, in order to safeguard adequately the public interest.

Related Professions

The growth of forestry has been accompanied by similar growth in related professions, and has indeed helped to stimulate the development of these professions. Because of the variety of products and services supplied by the forest, foresters have always perforce been concerned with other resources. On public forests in particular, they have had to formulate plans of management that gave due consideration not only to timber but to soil, water, forage, and wildlife. Silviculture had to be supplemented by comparable skill in the handling of these other resources. In an age when there is no escape from specialization, this situation led to specialized research, specialized training, and the establishment of organizations such as the Wildlife Society and the Society of Range Management.

The time has passed, if it ever existed, when forestry could claim to be the profession that deals with the management of wild lands of all kinds. It must content itself with the narrower, but still enormous, field of managing lands on which trees are the principal form of vegetation. This does not, however, relieve the forest manager of responsibility for intelligent handling of all the varied resources on such areas. He must still know enough about soil, water, forage, wildlife, and even minerals to give them the proper place and the proper treatment in his management plans. Obviously he will requisition the assistance of men with specialized training relating to these resources whenever the occasion requires, just as he requisitions help from engineers, landscape architects, entomologists, pathologists, economists, and political scientists when he gets beyond his depth in their particular fields.

One of the major problems of modern civilization is how to pool the skills and to coordinate the activities of its innumerable specialists. Unless this can be done, we may find that we have too many who know too much about too little. It is fine to have foresters who are specialists not only in forest ento-

mology but on some particular group of insects such as the bark beetles; or to have wildlife managers who can tell you all about the intimate habits of the black duck but who know less than you do about the white-tailed deer. We also need generalists such as the average dirt forester, or in a still broader field the conservationist, who can evaluate the technical, economic, social, and political factors involved and give each its proper place in the picture. How to train the members of each group, and then how to get them together, is one of the problems posed by the growth of forestry and its related professions.

So far as foresters are concerned, I believe that a partial answer lies in educational and administrative setups that bring them in close touch with their cousins in other natural-resource fields. If foresters, as we like to think, actually fathered the conservation movement, it is particularly important that they should let no walls be erected between themselves and their colleagues in these fields. We shall advance much farther and faster together than separately.

Professional Education

Probably little needs to be said about education and research as factors in the growth of forestry. They are of such basic importance, and on the whole are so relatively non-controversial, that they have had widespread and effective support.

No one would claim that schools of forestry have done a perfect job. They have, however, turned out men who have for the most part met satisfactorily the responsibilities they have had to assume in an extraordinarily wide range of activities. U. S. Forest Service studies have shown that failures among foresters in its employ have been due far more to lack of necessary personal qualifications than to inadequate technical training. I believe that the same situation exists in industry, where the majority of current graduates now find employment. Fifty years ago the federal government, the states, and industry ranked in that order as the chief employers of foresters. Today the order is reversed. Certainly this would not be the case if industry did not feel that it is getting its money's worth in technical and other service.

Naturally the scope and content of forestry training have changed with the times. More emphasis has gradually been placed on the economic and business aspects of forestry; on the use of mechanical equipment, including airplanes and aerial photography; and on graduate training. Some schools have stuck pretty closely to timber production and utilization, while others have branched out into wildlife management, range management, recreation management, and watershed management. In general, stress has been laid on technical competence rather than on such items as administration and public relations. Whether wisely or not, vocational or subprofessional training has been relatively neglected.

So far as numbers are concerned, the present educational system seems adequate, perhaps more than adequate, to meet the requirements for professionally trained foresters. The pressing need today is for higher quality of instruction. Here the schools are up against the difficulty of providing a training that is sufficiently broad and at the same time sufficiently intensive in the four or five years at their disposal. It is physically, and mentally, impossible to include in this period, or any other period short of a lifetime, all the professional and non-professional subjects listed by employers, graduates, and students as of major importance.

This situation points to the wisdom of encouraging widespread experimentation in curriculum making, course organization, and teaching methods. We still have much to learn about how best to educate a forester for work in a broad and growing profession, for effective citizenship, and for personal development in a complex and topsy-turvy world. Of two things, I am sure. The task will require faculties with professional and personal qualifications of the highest order; and it will require the crossing of departmental lines so as to obtain the closest cooperation between different units in the institution.

Forest Research

The history of research has been similar to that of education. Progress on the whole has been satisfactory, but as in every other field we find that the more we learn the more there is to learn. Every new discovery is apt to raise as many questions as it answers. At the same time, research has already resulted in improved practices in every branch of forestry, from protection against fire, insects, and disease through mensuration, silviculture, managment, logging, and manufacture to marketing of the finished product. Although practice still lags behind knowledge, research has been one of the major factors in the advancement of forestry on both public and private lands.

By far the bulk of the research to date has been by the federal government, largely through the forest experiment stations and the Forest Products Laboratory, with schools of forestry next. It is therefore encouraging to note a recent trend toward the expansion of research by the states and by industry. Much of this deals with specific problems to which an immediate answer is required for administrative purposes, but increasingly attention is being given to problems of a more fundamental character. For example, at least one southern state and two large western corporations are embarking on studies in forest ecology and forest soils. Another state is supporting research in these and other fields at the state university. At least two states have their own forest products laboratories. The TECO laboratories are an outstanding example of industrial activity in this field, but many other industry groups and individual companies are conducting technological research either by themselves or through educational institutions.

Several lessons may be learned

from past experience. While "administrative research" has its place, and it is an important one, greater progress in the long run will result from research which deals with basic principles, often with no regard to their immediate application. Federal and state experiment stations and universities should pay much more attention than they now do to basic research while the apparently more "practical" research should be left largely to federal and state administrative agencies and to industry. For basic research, men with lively imagination and intensive training in some specialized field of knowledge (not necessarily forestry) are essential. Individual initiative must be safeguarded but combined with a pooling of effort to the extent that the nature of the problem under investigation requires team work. Some mechanism must be devised for making the results of research generally known and for getting them put into practice.

The Forester and His Profession

Finally, let us consider for a moment the growth of foresters as contrasted with the growth of forestry. Numerically we have proliferated so rapidly as to make our curve of growth resemble one of the compound interest curves with which we struggled in valuation. Fifty years ago a mere handful of foresters with faith, vision, and courage organized the Society of American Foresters. Today that Society comprises more than 7,000 members scattered throughout the length and breadth of the land.

Increasingly, foresters have made their impress on the life of the country, both as professional men and as citizens. In federal, state, and private service; as technicians, administrators, investigators, educators, and business executives; as selectmen, mayors, governors, and legislators—foresters have made a record of which the profession may well be proud.

With this broadening of the scope of their activities, and particularly with their increased participation in private enterprise, has come a gradual change in attitude. No longer are foresters as a whole classed by their friends in industry as impractical theorists, "lily whites," and radical reformers. Contact with the hard realities of the business world has brought a sobering appreciation of the importance of financial considerations and of the limitations on freedom of action imposed by customs, economies, laws, and polities.

This is all to the good provided the forester's new-found familiarity with the economic facts of life does not blind him to its other aspects. I still like a statement which I made ten years ago that the primary purpose of forestry "is the management of forest lands in such a way as to enable their varied resources to make the maximum contribution to the national well-being. This is a social objective, to be attained in an economic world, through the use of biological and engineering techniques." That objective implies a return in excess of the expenditure required to obtain it, in other words a net income. The profit motive applies to all forest owners, private or public, with this important difference—that in the case of the former the profit must be a financial one, while with the latter it may take many other forms.

Private property is established and maintained for social purposes. In the case of forest lands that purpose is the production and utilization of certain goods and services desired by society. So far as the private owner is concerned it it obvious that these activities must also result in a net income in dollars and cents. Profit-making is not only a legitimate but an essential feature of business activity and is consequently one of the concerns of every forester in private employ. This fact does not relieve him from the duty of advising management practices that are best from the technical point of view, but may influence the feasibility of their adoption.

The two objectives of private profit and public interest are commonly compatible. When they are not, the latter must take precedence, and consideration must be given to attaining it through public ownership, control, or subsidy.

Although public owners are not under the same compulsion to make a financial profit, it is incumbent on them to be sure that all expenditures result in value received. This is admittedly difficult because of the "intangible" character of some of the returns, but none the less essential. The mere fact that public servants are spending money not their own should make them particularly careful to avoid waste and extravagance by using it wisely and efficiently.

Every profession, however imperfect its practice, emphasizes the idea of service. This attitude is well expressed by R. H. Tawney in a book entitled *The Acquisitive Society:* "The essence of [a profession] is that, though men enter it for the sake of livelihood, the measure of their success is the service which they perform, not the gains which they amass. They may, as in the case of a successful doctor, grow rich; but the meaning of their profession, both for themselves and for the public, is not that they make money but that they make health, or safety, or knowledge, or good government or good law. They depend on it for their income, but they do not consider that any conduct which increases their income is on that account good."

In a world that is seemingly becoming more and more materialistic we need constantly to remind ourselves that other values are more important than money and power in bringing professional success and personal happiness. "For what is a man profited, if he shall gain the whole world, and lose his own soul?" The recent adoption by the Society of a code of ethics indicates both its recognition of ethical values and its growing maturity. These are days when the old-fashioned virtues of honesty, thoroughness, dependability, thrift, foresight, common sense, consideration of others, and just plain hard work need emphasis.

Foresters have unsual opportunity to influence the future of this country for better or for worse. They are concerned with one of its most basic resources, and the

way in which they handle that resource today may have results that will be felt for generations. No other profession has a greater responsibility to society and to the future. May it discharge that responsibility as courageously and effectively in the next fifty years as it has in the first half century of its existence.

Summary

Let me conclude with a brief summary of the main points I have tried to make.

1. The first major advances in forestry were at the federal level. More recently state organizations and private owners have been forging to the front. Satisfactory relationships between federal, state, and private interests are gradually being worked out in the fields of ownership, control, and cooperation.

2. The forward surge in private forestry has been due chiefly to more favorable economic conditions and progress in technology. Large areas, particularly in the smaller ownerships, are still not under satisfactory management, but intensive educational campaigns are under way to improve the situation.

3. The most striking gains have been in fire control, artificial reforestation, closer utilization both in the woods and at the mill, the adoption of improved but still relatively crude silvicultural practices, and the preparation of broad plans of management. More attention needs to be given to the biological basis for forestry, to forest influences, and to social returns and costs.

4. Education and research have supplied the personnel and the facts without which forestry is impossible. Strengthening of present activities in both fields is a definite need for further progress.

5. Foresters have grown in numbers and in competence. The future of the profession will depend on their technical ability, their breadth of view, their foresight, and their acceptance of service as the objective of all professional endeavor.

6. Forestry and foresters have become accepted as part of the local and national scene. The record of the last fifty years constitutes a creditable introduction to the main story, which still remains to be written. It is both a promise and a challenge for the future.

Analysis of a Forage Utilization Method Based on the Weight of Plant Units[1]

There is need for a method of determining accurately the amounts and kinds of forage plants that are utilized by different classes of grazing animals. Most of the methods that have been devised are based upon estimates of the height, weight, or length of leaf, stem, or twig removed. Utilization may be expressed as a percent of the total amount of forage produced, or of the amount that may be grazed, or that should be left. However, it is difficult to relate percent utilization to the volume of forage utilized. For this reason, recent methods have been to measure the amount of forage that has been utilized by determining the weight of plant material prior to and subsequent to grazing.

The purpose of this study was to determine the feasibility of measuring forage utilization by collecting plant units before and after grazing from plots one square foot in area. The conclusions are based upon the calculated number of square-foot plots of vegetation required to secure a measurement, within 5 percent accuracy, of forage from a heterogeneous sagebrush-grass-browse vegetative type. The analyses were based on (1) the total weight of the current year's forage per plot, (2) the weight of the individual species per plot, and (3) the weight of individual plant units per species.

Two hundred randomly located square-foot plots were clipped before and after grazing in each of six 20,000 square-foot experimental areas.

On the total forage basis the calculated number of square-foot plots required varied from 524 to 2,774 before grazing and from 740 to 4,624 after grazing. On the individual species basis the number of plots required ranged from 1,600 to 29,412 before grazing and from 1,764 to 54,756 after grazing. The number of individual plant units required ranged from 1,024 to 24,469 before grazing and from 595 to 26,896 after grazing.

The calculated man-hours required to collect the minimum number of samples based on total forage per plot would be 69 before grazing and 97 after grazing. On the individual species per plot basis 160 man-hours would be required to collect the minimum number of samples before grazing and 176 after grazing.

These data indicate that the weight of plant units appears to be impracticable as a basis for measuring forage utilization of heterogeneous sagebrush-grass.browse vegetative types.

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[1]Abstract of thesis submitted for the degree of Master of Science in Range Management at Utah State Agricultural College, Logan. 1949.

Fire as an Ecological Factor in the Southwestern Ponderosa Pine Forests

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THE SOUTHWESTERN ponderosa pine forests have in large part been but little influenced by man until comparatively recent times, despite early exploration and colonization by Spaniards and highly developed Indian civilizations of considerably earlier origin. These forests occur at higher elevations in mountainous and more remote regions and they were the home of the more primitive and warlike tribes, notably the Apaches, who successfully defended them from encroachment by white men for hundreds of years. The Indians lacked the means whereby forest conditions could be altered to any great extent and they kept the Spaniards with their herds and flocks from ranging very far from the settlements and valleys.

Encroachment by American Anglo-Saxon civilization proved the Indians' downfall. Aggressive newcomers invaded the mountains and forests in search of gold and of additional range for livestock. The ensuing clashes, which culminated in the 1860's, '70's, and '80's, resulted in confiscation of large portions of the Indians' land and the confinement of the Indians to reservations.

Profound changes in forest conditions have occurred as a result of white men's activities. These changes, which are continuing to manifest themselves, appear largely to be the result of overgrazing, started by great herds of cattle and bands of sheep brought in after subjugation of the Indians, and, later, the result of foresters' attempts to exclude fire from the forest, as a necessary prerequisite to forest management.

What are these changes and of what significance are they in connection with forest management and protection? To explain and evaluate them it is necessary first, for comparative purposes, that early-day conditions be described and that there be an understanding of the part that fire played in development of ponderosa pine forests before coming of the white man. The writer believes that he can explain and illustrate these points by means of the tree-ring and fire-scar record and by means of photographs. From such evidence conclusions can be drawn with respect to possibilities of employing prescribed fire as a silvicultural and hazard-reduction agent.

[1]This article represents the author's views only and is not to be regarded as an official expression of the attitude of the Indian Service on the subject discussed.

The Tree-Ring and Fire-Scar Record

Older whites and Indians remember when the ground under the ponderosa pines was grassy, open, and parklike, with but few windfalls, snags, and other debris. On certain areas similar conditions persist to this day. (See Cover:—Scene typical of area burned over by extensive surface fire of May 1943, west of Malay Gap on the Black River Roadless Area of the San Carlos Indian Reservation. As indicated by the McDonald Ridge stump section, in Table 1, surface fires on this area have occurred on an average of once every seven years. Photo taken August 1949.) Old timers also testify to the fact that surface fires were of frequent occurrence and wide extent. Even more significant in establishing dates when fires burned is the tree-ring record.

The tree rings show age of the tree and record vicissitudes of its life. When fire scars are formed at the base of a tree, new wood grows from living edges of the cambium layer towards the center of the wound. The next fire interrupts the healing process and enlarges the wound. After occurrence of a number of fires one

TABLE 1.—FREQUENCY OF FIRES IN SOUTHWESTERN PONDEROSA FORESTS AS INDICATED BY FIRE-SCARRED STUMP SECTIONS

Forest and area	Center date	Date section was cut	Years during which fires burned	Number of fires	Av. int. between fires No. Years
White Mountain Apache Indian Reservation, Forestdale	about 1790[1]	April 1949	1899, 1890, 1886, 1879, 1876, 1867, 1851, 1845, 1840, 1837, 1831	11	6.1
White Mountain Apache Indian Reservation, head of Corn Creek	1838	February 1950	1906, 1901, 1889, 1883, 1881, 1867, 1863, 1853, 1846	9	6.7
White Mountain Apache Indian Reservation, near Odart Butte	1837	February 1950	1913, 1899, 1893, 1887, 1883, 1881, 1879, 1878, 1876, 1870, 1868, 1860, 1851	13	4.8
San Carlos Apache Indian Reservation, McDonald Ridge near Malay Gap	1830	May 1950	1943, 1935, 1919, 1910, 1898, 1893, 1889, 1885, 1879, 1876, 1868, 1856, 1851, 1847	14	6.9
Kaibab National Forest, Orderville Canyon near Jacobs Lake	1629	April 1950	1934?[2], 1885?[2], 1871, 1856?, 1837, 1827, 1818, 1795, 1789, 1784, 1776, 1758, 1750, 1744, 1735, 1727, 1721, 1711[3], 1708	19	11.9

[1]Section does not include pith. Innermost ring on section is 1804.
[2]Exact dating by writer uncertain because of minuteness of growth rings and presence of black pitch.
[3]Fire burned this tree in June 1711. About one-third of the early wood for 1711 near the injured sector was laid down after the fire.

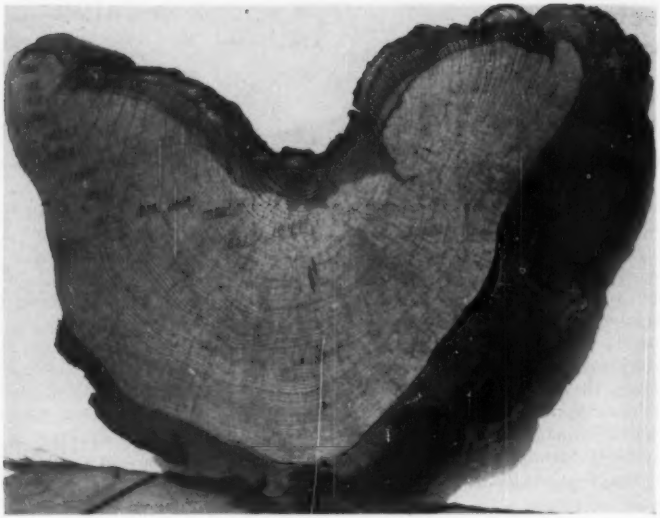

FIG. 1.—Fire-scarred stump section of ponderosa pine cut on McDonald Ridge, near Malay Gap, on the San Carlos Apache Indian Reservation, May 1950. Fire frequency data from this section are listed in Table 1.

can frequently observe in fire scars or "cat faces" a whole series of interrupted healing calluses. By dating the rings to the points where calluses occur, it is possible to determine with considerable accuracy dates when the various fires burned. (Fig. 1).

To determine frequency of early-day fires a number of fire-scarred stump sections from freshly cut ponderosa pines in various parts of the Southwestern Ponderosa Pine Region[2] were taken to the Laboratory of Tree-Ring Research, University of Arizona, Tucson, for identification and dating of the various growth rings. These ring analyses were done by Dr. A. E. Douglass, director, and by Dr. Edmund Schulman, dendrochronologist. For identification, they marked each decadel growth ring along various radii of the sections. With these marks for guidance, the writer then traced various rings from the scars and determined dates when the fires had occurred. Results are summarized in Table 1.

All these specimens contained ring records which could be precisely dated by the Tree-Ring Laboratory by comparison with the known local chronologies published in various issues of the *Tree Ring Bulletin*. However, the writer had difficulty in determining dates of a number of fires because of minuteness of growth rings and presence of heavy, black pitch. Also it should be noted that there exists a certain amount of doubt with respect to dating of fires following completion of the summer growth portion of any particular ring. Did fire occur during autumn of the same year or during spring or early summer of the year following? Experience in Southwest seems to indicate that the latter supposition will be correct in majority of cases. More certainty exists where fires occurred while growth was in progress.

In the writer's opinion it would prove extremely difficult to correlate fire dates with drought periods since from experience and observation he believes it to be a rare year indeed when fires at some time will not spread readily in the ponderosa pine forest. There should be some correlation between rare extremely wet years and complete lack of fire evidence.

The data indicate that in earlier days fires occurred just as frequently as fuel accumulated in sufficient quantity on the forest floor, when weather conditions were favorable and when some natural or human agency caused them to start. Lightning starts hundreds and even thousands of fires a year throughout Southwestern forests. In earlier days it is probable that Indians started many fires, either intentionally or by accident. Similar fire frequencies have been observed on numerous "cat faced" trees and stumps throughout the Southwestern ponderosa pine forests, on all sites from poor to very good and in all stands, ranging in density from light to heavy. Indeed, diligent search will usually disclose such evidence in practically all stands in excess of fifty years of age.

For how many decades or centuries did such periodic fires occur? The work of Dr. Douglass (*1*) and of Dr. Schulman (*6*) seems to indicate that there have been no significant long-range weather changes for many hundreds of years. Therefore, it is reasonable to assume that frequent periodic fires occurred for many hundreds of years. Such is indeed indicated by the giant sequoias, in restricted localities of the pine region of the California Sierra where these trees now grow. A giant sequoia section on display at the University of Arizona Museum indicates that a fire occurred in 634 A.D., when the tree was only 423 years old. The tree entirely covered the scar with new growth by 661, 27 years later.

John Muir, on a trip through the sequoia groves in the fall of 1875 (*5*), described how the big trees in falling sink into the ground to a depth of several feet and over the centuries are gradually consumed by recurrent fires. He mentioned that the root bowls and long, straight ditches left by

[2]For assistance in collecting the sections the writer is indebted to men of the forestry staffs of the White Mountain Apache and San Carlos Indian Reservations, the forestry staff of the Kaibab National Forest, Whiting Brothers Lumber Co., the College of Agriculture and Agricultural Experiment Station, University of Arizona, and the Southwestern Forest and Range Experiment Station.

the giants ". . . . throw a sure light back on the post-glacial history of the species, bearing on its distribution." Again in describing an extremely large sequoia snag with a huge basal "cat face," near King's River Canyon, he mentioned that he spent nearly a day ". . . . chopping off the charred surface . . . . and counting the wood-rings with the aid of a lens, I made out a little over 4,000 without difficulty or doubt but I was unable to get a complete count, owing to confusion in the rings where wounds had healed over." Muir also gave a vivid description of a fire encountered while on the same trip, in the forest between the middle and east forks of the Kaweah. He described how "It came racing up the steep chaparral covered slopes . . . . in a broad cataract of flame. . . . . But as soon as the deep forest was reached the ungovernable flood became calm like a torrent entering a lake, creeping and spreading beneath the trees where the ground was level or sloped gently, slowly nibbling the cake of compressed needles and scales with flames an inch high, rising here and there to a foot or two on dry twigs and clumps of small bushes and brome grass. Only at considerable intervals were fierce bonfires lighted, where heavy branches broken by snow had accumulated, or around some venerable giant whose head had been stricken off by lightning."

Influence of Fire on Stand Conditions

How did the ponderosa pine forests maintain themselves? It appears almost a certainty that any seedlings managing to start in the heavy grass stand of the forest floor would be killed by the next surface fire. The answers can be learned by observation of forest conditions. It should be recalled that larger trees are constantly being killed by lightning, insects, disease, or windthrow. In earlier days the running, searching fires inevitably attacked and burned the dead snag and windfelled remains of these trees and gradually reduced them to mere beds of ashes, admirably suited for seedbeds. Where such hot fires burned, clearings were made in the heavy grass stand and groups of seedlings usually became established in the ashes (Fig. 2). By the time that grass could re-establish itself over such areas many of the seedlings were of sufficient size to survive fires. This accounts for the even-aged groups of pines in various stages of maturity (Fig. 3). Larger even-aged groups or stands can probably be accounted for by severe insect epidemics or by extensive windthrows, followed by fires of considerable intensity. The sometimes considerable gaps between different age groups, measured in number of years, can probably be accounted for by lack of suitable seedbeds, or to delay or failure in seeding due to lack of favorable seed years and favorable moisture conditions in proper combination.

FIG. 2.—Two-and three-year-old ponderosa pine seedlings established in clearing in grass ground cover caused by burning of heavy fuel during 1943 fire west of Malay Gap. Photo taken August 1949.

Thus it is apparent that fire acted as a sanitary agent in cleaning up remains of dead trees and other debris and at the same time prepared and tilled seedbeds in which new trees could start. This cyclic process can still be seen in operation in restricted areas where periodic fires have continued, and where overgrazing has not destroyed the grass cover of the forest floor.

Importance of Fire as An Ecological Factor

Past history clearly indicates that fire has been an important ecological factor in the ponderosa pine forests for countless centuries. Man can improve on nature under certain conditions and it is probable that on certain areas he can grow heavier stands than were developed under natural conditions. It cannot be denied, however, that on extensive areas nature did an excellent job of growing ponderosa pine. In fact, on many of these areas, it is hard to see how she can be much improved on.

The writer cannot agree with foresters who refer to the past fire history of the stand as "the process

of attrition" and who assume that the magnificent forests found by the first white men were but understocked, patchy stands, "worn down by the attrition of repeated light fires." As LeBarron has suggested (*4*), there has been a tendency to minimize fire as one of the natural long-standing ecological factors and to classify its status improperly by ranking it as a "man-caused" or "biotic" factor. Dr. Willis Linn Jepson, in his *Trees of California* (*2*), stated in part that "The Sierra Nevada forest, as the white man found it, was clearly the result of periodic or irregular firing continued over many thousands of years. . . . . As a result the Sierran forest shows marked reactions to millennial fire conditions. . . . . Indeed the main silvical features, that is, density, reproductive power and dominance of types, are in great part expressions of the periodic fire status." The Southwestern forests are also expressions of the periodic fire status.

Recent Ecological Changes

White men have caused profound changes from the forest conditions described above. Similar changes in other portions of the ponderosa pine region have already been discussed in considerable detail by the writer in previous publications (*7, 9, 10, 11, 12*). The following points, however, are worthy of particular attention:

Preparation of extensive mineral soil seedbeds through overgrazing and destruction of the grass sod appears to have been of particular importance in establishment of the dense reproduction stands characteristic of the greatest portion of the Southwestern ponderosa pine forests, though it has been observed that under favorable circumstances seedlings will establish themselves in fairly heavy grass. In any event, fire has been excluded from the major portion of these stands from their very inception. On extensive areas it is apparent that desirable growth is not taking place. Indeed, to the writer, many of these stands appear stagnated (Fig. 4). Thinning to obtain improved growth presents a very serious problem.

FIG. 3.—This group of poles and saplings in the west Malay Gap area originally started in a clearing similar to the one depicted by Figure 2. Now grass has become re-established and the trees have survived at least one fire, that of 1943. Note in foreground where a windfall was almost completely reduced to ashes during the most recent fire. Grass is principally mountain muhly (*Muhlenbergia montana*). Photo taken in August 1949.

FIG. 4.—Exceedingly dense 30- to 40-year-old ponderosa pine reproduction on Faught Ridge, White Mountain Apache Indian Reservation. This stand has not experienced fire. Condition depicted is typical of extensive areas on poorer sites. Photo taken in August 1949.

As in the Pacific Northwest, it appears that the dense reproduction stands are in some cases seriously affecting growth of the overstory trees, even supposedly vigorous trees reserved on logged areas, through competition for available soil moisture (Fig. 5). This com-

petition may cause the larger trees to succumb more easily to debilitating effects of disease or to attacks by insects.

The fire hazard has increased tremendously and is continuing to increase. The dense reproduction stands themselves are highly inflammable. The heavy needle mat that has accumulated, snag and windfall remains of numerous beetle or lightning killed trees, and other debris have added to the fuel (Fig. 6). Many reproduction stands are fairly laced with numerous highly inflammable windfalls. Where fires under normal primeval conditions were more apt to burn lightly over the ground, they now frequently rage through the tree tops, once out of control, killing everything. On extensive areas already excessive fuel has been added to greatly by undisposed of logging slash. The writer believes this to be the most threatening and potentially dangerous change that has occurred since early days.

Possible Corrective Measures

As the writer has previously indicated (*12*), undesirable features of the changes discussed above can be corrected if sufficient funds can be provided for really intensive management. Improvements in utilization practices may also in time render economically feasible the practice of such intensive management. It may become possible, for instance, to thin and utilize even small saplings and to utilize logging slashings on an economic basis. These wonderful things may come to pass, but it is questionable if such intensive practice can be made to pay on the bulk of the ponderosa pine lands, where growth is slow and productivity low under most ideal conditions, especially when products from such lands must compete with forest products from the Douglas-fir, southern pine and other regions, where growth is rapid and markets are close at hand. Such developments are still in the future.

In the meantime it appears that research to correct adverse conditions should be continued. Such re-

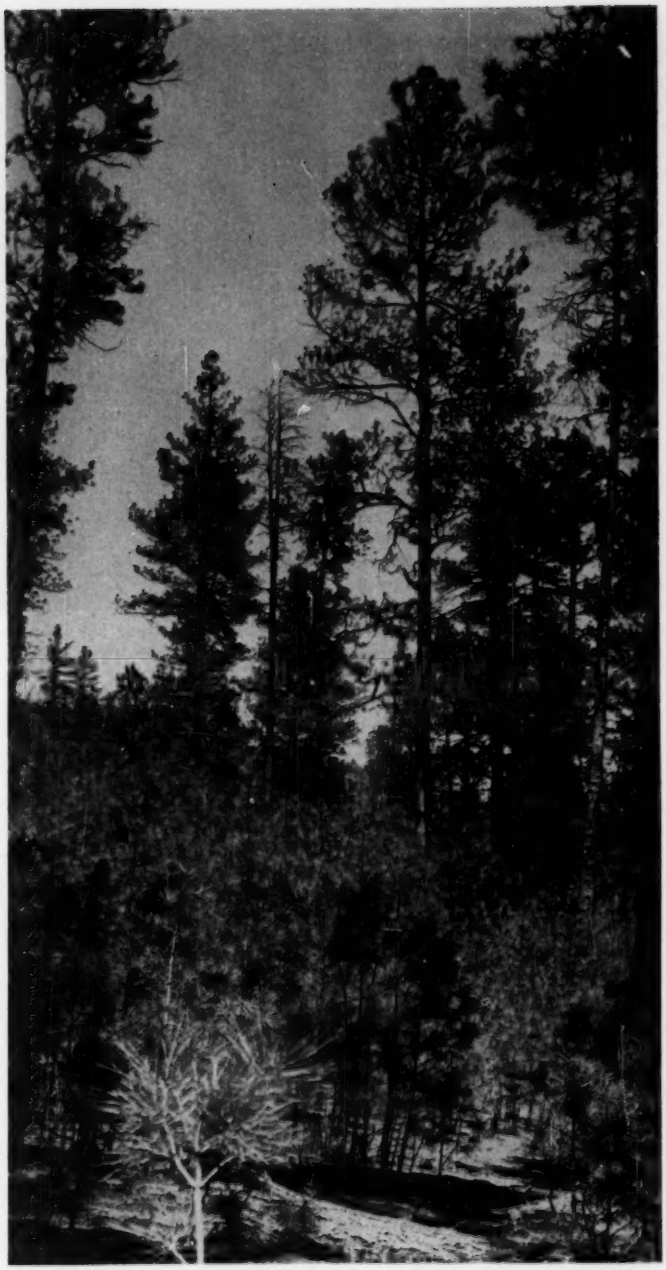

FIG. 5.—This photo, taken in April 1949, shows reserve stand several years after light selection cut on the Mescalero Indian Reservation, New Mexico. Note dead trees and apparent poor vigor of other trees of overstory. Note also the dense sapling and pole understory. Fire has been excluded for many years. Conditions depicted are typical of extensive areas.

search should encompass use of prescribed fire for reduction of hazard and for possible improvement of growth. Reduction in hazard should be measured quantitatively. Effects on density of stocking, growth, quality, and defect should also be studied. Proper application of prescribed fire may be proven beneficial over extensive areas. The writer bases such belief on studies of recent burns on areas where periodic fires have continued to recent date. Though the ground under the larger trees on these areas is still grassy, parklike and comparatively free of debris, it may surprise some foresters to find that it is also well stocked with excellent sapling and small pole stands of ponderosa pine. Evidently nature frequently does an excellent job of growing ponderosa pines. The writer also bases his belief on considerable experience in connection with application of prescribed fire in ponderosa pine stands on the Colville Indian Reservation in north-central Washington (*3, 8, 10, 11*).

...e sapling and pole stands are laced with countless thousands of wind... ...ard is extreme. Photo taken on Faught Ridge in August 1949.

Conclusions

Fire has been an extremely important ecological factor in development of the Southwestern ponderosa pine forests as the white men found them fifty to seventy years ago. Subsequently, the white men's activities have caused profound changes in forest conditions; some of these changes appear to threaten sound management and protection.

Study of fire as an ecological factor appears to indicate that prescribed fire, properly applied, may in many instances be used to correct certain of the unsatisfactory conditions by reducing hazard, by improving growth, and by improving quality. Tests should be conducted to determine feasibility and results of prescribed burning conducted under varying conditions of stand, fuel, fuel moisture, and weather.

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A Yardstick for Judging Public Forestry Projects[1]

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DURING THE LAST political campaign, the American people were offered a "fair deal" program. Before that it was a "new deal," and in earlier years the political orators shouted about a "full dinner pail," "a chicken in every pot," or something else in the same vein. Some of these slogans have turned out to be no more than empty promises. However, each of them expresses in its own way the primary purpose or objective of this country of ours. That purpose is to run things so that our way of life will continue to flourish and as many Americans as possible will prosper. Although we all kick about high taxes and big government, the fact remains that both the great cost and great size of government have come as a result of the effort by our leaders to assure the security and prosperity we seek.

The process of maintaining security and prosperity has become so complicated that very few people completely understand it. It has come to require fighting on foreign soils, feeding and clothing people oceans away, keeping the sag out of farm prices, and other far-flung activities. However, if we disengage ourselves from the details and look at the overall situation, we might agree that the recipe for security and prosperity has several main ingredients:

1. The maintenance of law and order within the country.

2. Development of a high agricultural and industrial potential.

3. Prevention of the loss of our social and economic advantages and our way of life because of conditions and forces outside the country.

4. Maintenance of the physical environment which gives this country its great potential in a highly productive condition.

There are those who as a corollary to the latter ingredient would add:

5. Restraint of population growth within the limits supportable by the natural resources.

As foresters, the particularly significant point is that conservation is one of the four or five main ingredients for national success. Maintenance of the natural resources in a highly productive condition is truly "big league stuff" and every bit as important to the future welfare of the United States as war and aid to Europe. It is these natural resources which give us the strength to do the other things. We need only to look around to see that the anemic nations today are those with the least resources.

There was a long period when the importance of conservation was not generally recognized. Reckless and wasteful use of the natural resources affected the immediate prosperity of the country to only a minor degree, because in relation to the population these resources were superabundant. The New Englander on a worn-out farm migrated to a new location. The lumber industry of the Lake States moved south and west. The United States seemed to be in the class of the rich family which could afford the doubtful honor of the biggest and fullest garbage can in town. That day is past. A reduction in the abundance of our natural heritage and an increasing population have brought the realization of a great and growing pressure upon the resources. World War II emphasized better than anything else could just how great the pressure is. It is almost unbelieveable that more than a million freight carloads of lumber were required just for crating the food, clothing, and equipment used by our military machine. This is just one of an accumulation of facts which makes it plain that what we do or do not do now in the way of conservation is going to have an all-important effect upon our economic health in the future.

There is nothing new in what I have just said. I mention these facts merely to reemphasize that the primary objective of our conservation effort is prosperity and security. This being the case, we must use a yardstick for measuring public forestry projects which take security and prosperity into account. This will not be the ordinary private business-man's yardstick. The private owner in his evaluation process gives major weight to the relation between direct dollar returns and costs. He discounts returns and costs occurring in the future, generally at some compound interest rate. That is a perfectly sound approach for him, but it cannot be depended upon to give us a proper evaluation of public projects and effort. What the public does to assist private owners and to manage public lands must be evaluated by nonmonetary as well as monetary considerations, by indirect as well as direct returns.

It goes without saying that the work of public agencies should be done just as efficiently and cheaply as possible. In many cases public ventures will produce a substantial direct dollar return. However, with a little over-simplification, we can say that the primary purpose of public effort is not to make money but rather to make it possible for us as individuals to prosper. The criteria by which we judge public conservation projects should take that into account—should recognize how important it is to all Americans to have an abundant production of wood, water, and other products and services from the forest land.

An Inventory

All I have said up to this point is that our national forestry conservation wagon should be hitched to a star—the star of abundance.

[1]Paper delivered at a meeting of the Division of Forest Economics, Society of American Foresters, Seattle, Wash., October 12, 1949.

The risk I run in putting it that way is that I might seem to infer that the sky is the limit so far as spending for conservation is concerned. Nothing could be farther from the truth. There is a limit in the capacity of even the United States to do things. That limit has been rising because of our growing population and amazing advances in mechanization which multiply the individual output. But there is a limit. We can tax ourselves into the very insecurity we are trying to avoid. Maintenance of our natural resources in a state of abundance is an important job, but it is just one of the jobs to be done.

It seems to me that the first step toward a properly oriented and adequate forestry effort in the United States is a size-up or physical inventory of the total task. How much effort and money will it require to produce wood in the quantity and of the quality needed? What will be required properly to safeguard forested watersheds and produce the other benefits desired?

The U. S. Forest Service in its recent reappraisal project has taken the first steps toward answering these questions. In connection with this project the Service has made estimates of how much timber we should plan to grow to assure adequate supplies for the future. It is necessary to go from there and to determine what this or whatever other wood production goal is accepted will require in the way of forestry effort. How much will it cost? How much of the cost will the public have to bear?

More or less parallel estimates are desirable for watershed, recreation, and other benefits. For example, we should attempt to determine how much money it will take, over and above what we spend for timber growing, to put and maintain the forests of the United States in such shape that they will provide adequate protection of watersheds and most usable and least harmful water flow. The matter of what is the proper amount of watershed management from a physical standpoint is no doubt very complicated. I venture to say, however, that it is easier to determine physical adequacy than it is to measure all of the intangible economic values. As a national policy, we can make less of a mistake by giving our watersheds the care they need to function properly than by determining how little we might do based on values which we cannot measure very well and which are constantly changing, anyway.

When we arrive at the composite cost of growing sufficient timber supplies, obtaining proper watershed management, and providing recreation and other benefits, we will have for the first time a measure of the total job required to maintain a desirable level of forest productivity. We will know how adequate present programs are and what expansion is desirable.

Weighing the Cost

It is difficult to see how anyone could decide that this country cannot afford to do whatever is required to maintain the forests in a highly productive condition. There is, however, a growing feeling that even the United States cannot afford to undertake as much as it should in the way of world stabilization, health, education, highway construction, conservation, and a number of other high-priority activities. When it comes to cutting the pattern to fit the cloth, proposed conservation programs should receive critical inspection along with the other lines of activity. Somewhere in the higher councils of government the estimated cost of a desirable forest conservation program must be reconciled with the apparent capacity of the nation to bear the cost.

Determining Priorities

So far as timber production in the foreseeable future is concerned, this country probably will not need to use the full growth capacity of the forests. Thus, regardless of whether there is enough or only half enough public money available for forest conservation, public agencies will need to exercise their economic skills to determine where and how to spend the money most effectively. This matter of establishing priorities will severely strain our judgment. There is no hocus-pocus that will give an easy answer. Just as our estimates of the total conservation job should be determined by what we expect the forests to contribute to future security and prosperity, the *where* and *how* to spend the money allocated should be based on these same broad considerations. The principal departure which seems desirable from past methods is the relating of the individual project more directly to the whole job of forest conservation in the United States.

We are, of course, handicapped in our evaluations because we must take into account items which are not directly comparable—many not measurable in dollars and cents. Without going into detail, I would say there are two major classes of indirect returns which, along with direct financal yields, must be stacked up against the costs. One is local welfare, that is, community employment and income opportunities, recreational needs, and such. The other is national security and welfare, which would include such items as adequacy of wood supply, food production, flood control benefits, power requirements, and so on.

Several of us recently had the responsibility for deciding to what extent it is desirable to attempt to grow white pine on the national forests of the Inland Empire in face of high blister rust control costs. We made detailed and complete analyses of costs and future stumpage values. But the final evaluation had largely to be a matter of judgment which took other nonmeasurable factors into account. One of them was: How urgent is it to the nation to continue to produce abundant supplies of wood with the qualities white pine possesses? Another major consideration was the likely future importance of white pine to the lumber industry in that region where many secondary species

experience great difficulty surmounting the barrier of high freight cost to the principal markets.

The purpose of analyzing the indirect benefits is, of course, to establish the best measure possible of the necessity and urgency for undertaking a particular project. We then look at these benefits very much the way a commanding general views the possible gains from taking a beachhead. How much is their contribution to the ultimate objective worth in the way of costs measured in quite different terms?

In many instances the projects which we choose will return a substantial direct return to the treasury—as in stumpage values. It is possible, I suppose, that there are forestry projects which are extremely attractive from a purely financial point of view, but which are unsuited for public investment due to the lack of other benefits. In any case, there are public forestry projects which will be justifiable if all that we do is break even so far as direct revenues are concerned. And certainly there are situations where public investment is desirable though there will be no direct return to the public treasury.

This puts me in the position of saying that we should not allow dollar return and interest-earning capacity to be the overwhelming consideration it is in private economics. One of the dangers in using compound interest in this connection is that it injects an artificial private time preference into public economics. As a practical thing we as a nation tend to be more concerned with what will happen tomorrow than we are with what will happen a long time hence. Yet, it is entirely out of keeping with our concept of forestry, and it is poor public economics, to say that it is 19 times more important to grow timber for today than it is to grow it for 100 years from now. Three percent compound interest tells us that. For the most part, in our public forestry planning we must place the future very nearly on a par with the present.

Compound-interest calculations do have a place in public forest economics. When other considerations and benefits are equal, the project which returns the greatest direct revenue should be given priority. It is important, though, that we be sure all other things are equal. Monetary returns are important and they always will be. The purpose of this paper is not to minimize them but rather to emphasize that the indirect gains must always be the prominent consideration in public economics.

Though the words *security* and *prosperity* are abstractions and for that reason sometimes have a hollow sound, they do express very well the major objective of this nation and the primary purpose of government effort. As abundant resources are required for the continued welfare of this country, we should attempt, so far as possible, to weigh our public forestry projects in terms of that objective.

Comments on "A Yardstick for Judging Public Forestry Projects"[1]

Henry J. Vaux

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PUBLIC FOREST planning has as its goal the perpetuation of forest resources of all kinds in sufficient abundance to maintain the prosperity and security of our nation. Any lesser objective would be foreign, not only to the traditions of the forestry profession, but also to the realities of current political philosophies. In summing up his views on the broad purpose of public conservation policy, Hutchison [see preceeding article] has therefore chosen a happy phrase when he tells us that our forest "conservation wagon should be hitched to a star—the star of abundance."

If we can agree on this general objective, there are two major features of Hutchison's expressed position which I would like to explore briefly. This exploration will take Hutchison's approach for granted and focuses attention on some of the further problems which we must solve if we are to use it to greatest advantage.

Definition of Objectives

Few will argue with us when we say that our policies should aim at an "abundance" of forest resources, "properly" managed, at a "desirable" level of productivity. The brick throwing begins when we start to spell out what we mean by "abundant," by "proper" management, and by "desirable" levels of this or that. I believe that in the past we have been too prone to phrase our definitions in terms of physical absolutes. For some time now we have been trying to define wood requirements in absolute physical terms. We say that we "need" 50, or 70, or 100 billion board feet of wood. We then try to gear policies to this absolute physical objective.

The trouble with this sort of thinking is that it ignores the fact that realistic policy objectives must be relative in nature rather than absolute. We are promoting forest conservation, not just to maintain certain standards of physical preservation of the resource, but in order to maximize the satisfaction of human wants now and in the future. Therefore, objectives must be related to the satisfaction which the public might get from nonforest goods and services. They must also be relative to the dissatisfactions which inevitably arise when we apply productive effort to achieve an economic end; that

[1]Paper delivered at a meeting of the Division of Forests Economics, Society of American Foresters, Seattle, Wash., Oct. 12, 1949.

is, they must be related to cost.

Everyone, of course, would like to have wood available in such ample quantities that it could be bought for $20 per thousand board feet. But it is possible that there are other things that people would rather have even more. The Forest Service Reappraisal Project in its determination of growth goals has established a measure of the need for wood products. This measure reflects the amount of wood that might be consumed, under certain qualifying assumptions, if prices of wood and other materials hold in the future about the same relative positions as were typical of the period between the two world wars. This is an absolute measure of need. Our answer comes out as a single physical volume with no qualification as to the urgency of our need for this particular amount. Thus, the existing growth goal studies give us one dimension of the objective we seek—how much wood people would use if things remain about as they are, so far as relative supplies of wood and other products are concerned. But they tell us nothing about the elasticity of people's need for this amount of wood, relative to the numerous other commodities which people want to buy. One way of measuring this second dimension, elasticity of demand, might be to extend requirements studies to include analyses of what the situation might be if wood were (1) cheaper relative to other goods than it has been in the past, and (2) relatively more expensive. Such studies would move us a substantial distance along the road from an absolute definition of objectives to a relative definition in the field of wood production.

In emphasizing the relativity of objectives with respect to cost, we may again use the Reappraisal growth goal concept as an illustration. Careful analysis by the Forest Service shows that if wood prices are about what they have been in the past, domestic consumption 50 years hence may absorb about 62½ billion board feet of sawtimber per year. But what if the real cost of growing 62½ billion board feet for the year 2000 averages $100 per thousand board feet? If wood prices were then established at levels sufficient to cover this cost of production, normal demands would doubtless be less than 62½ billion board feet, assuming that the requirements forecasts are correct. If, on the other hand, prices were maintained at levels which would permit consumption of the entire 62½ billion board foot supply, we would find ourselves automatically subsidizing the production of this amount of timber in one way or another. There is, of course, nothing wrong with a production subsidy just because it is a subsidy. But most assuredly we should not fall into such a subsidy blindly, without knowing how much it will cost us or just what we are buying with it.

Hutchison has suggested that final decisions on these matters, which involve the relationships of the forest economy to other broad areas of national life, will be left to the judgment of the higher councils of government. If we continue to set our goals in terms of physical absolutes, such authorities must always choose either to reach the physical goal, at an unspecified and perhaps prohibitive cost, or to abandon it as a policy objective. As Hutchison points out this presents the "higher councils' with a Hobson's choice. Until policy objectives are determined with due reference to the relative nature of needs, we will fail to give policy makers all of the information they require if they are to act in the public interest.

Measuring Intangibles

The second phase of the problem on which I would like to comment involves this matter of "intangibles." What kind of a yardstick can be used to measure something which, by definition, is unmeasurable? I think we have erred in the past by too loose an application of the word "intangible" using it to designate many things which actually are susceptible to measurement. Let me use a few of the items included by Hutchison in his list of "intangible criteria' to illustrate my point of view.

Community employment opportunities, recreational needs, and flood control benefits have been mentioned as indicators of intangible local or national welfare. We should be able to go a very considerable way in expressing the values obtained from such returns in objective, measurable terms. Employment opportunity is admittedly a somewhat abstract concept. But we can and do measure the average level of real family income, the rate of expansion or contraction in the number of persons employed, and the long run outlook for permanance of stability of such employment in an area. And after we have measured these things plus other concrete variables falling within the field of sociology, I wonder how much valid intangible value remains in the concept of employment opportunity.

The problem of measuring the returns from recreational use is admittedly difficult to solve. But I do not believe that we have adequately explored all the techniques that may be available for measuring recreational values. One almost untried but promising approach involves equating values at the margin between recreation and some other use, such as timber production, where monetary measures are readily available. Moreover, within the last year the Forest Service has had administrative experience with the results of charging fees for the use of certain forest camp grounds. Study of such results is likely to throw additional light on the problem of recreational values. Casual observation suggests that analyses of recreational demand based solely on free use conditions may be rather misleading as to the elasticity of public demand for forest recreation.

Again, in the field of measuring benefits from flood control, the real difficulty is not that we are dealing with something inherently nonmeasurable. Rather, we are dealing with a problem so complex that it cannot be resolved completely by readily available techniques. The way out is through more basic analysis, objective thinking, and hard work—not through an appeal to

the Scarlet Lady named Intangible.

Although I have argued strenuously that we must and can go a considerable way toward exercising the phrase "intangible value" from the forester's lexicon, I am well aware that such a happy result will never be achieved in its entirety. There will always be some values which are inherently measurable but which we have not yet learned how to measure effectively. Others will involve such highly subjective matters as the value of the forest as a way of life, or the intangible social costs of substituting public administrative control for individual entrepreneurial decisions. These will have always to be appraised solely on the basis of individual judgment.

But by bending every effort to reduce such residual costs and values to a minimum we can accomplish two very important things. First, we can provide policy makers with more effective guides than are now available to them, paving the way for more rational exercise of judgment and, hence, for decisions more nearly in the public interest. Second, we will greatly strengthen our hands in securing public support for our programs. Nothing is harder to sell than an intangible. It is very much of a pig in a poke. To the extent that we can express what we now call intangibles in terms of measurable objective criteria, by so much will we have improved the chances of public agreement with our plans.

The Role of Interest Rates

In a free money market, the long run interest rate is related to and affected by the state of investment opportunities as well as by time preference. It yields information on the general level of economic return obtainable from marginal investments in new enterprises throughout the range of economic activity. This I think is vital information for effective planning. Suppose that there is no glut of capital for investment purposes, that the rate of return on one million dollars of new investment in enterprise A is 1 percent, and that interest rates suggest that other available investments will yield a return of 3 percent on the same outlay. If we wish to justify enterprise A, surely there is a strong obligation to show that other returns not included in the interest calculation more than offset its unfavorable money yield position. We do not fulfill this obligation by ignoring interest calculations or by relegating them to a secondary role. Rate of financial return is not the only thing with which we are concerned, but it is certainly one of the important things we should keep in mind. Let's recognize its usefulness as well as its limitations and use it accordingly.

With regard to time preference itself Hutchison says that "we must place the future very nearly on a par with the present." I am glad that he used the modifier "very nearly." As soon as we admit that the future is not on an exact par with the present, but only very nearly so, the concept of a positive rate of compound interest is in our midst. All that remains is to determine *what* rate of interest is appropriate. To that question we can profitably devote our close attention.

Hutchison has attacked the problem of making a yardstick for judging public forestry projects by describing the stuff of which such a yardstick should be made. He has concocted what I think is a strong and durable alloy, well suited to his purpose. But we still have ahead of us a big job to do in calibrating his bar. I am confident that clear recognition of the problem and careful study of it will lead us to the improved accuracy which we all seek.

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How Close Can Logging Leftovers be Utilized?[1]

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SMALL WOOD utilization is one of the most important problems confronting the logging industry.

Manufacturers of logging equipment are devising methods of bundling cordwood and small logs to eliminate excessive handling costs. Loggers are developing means of bunching logs by careful layout of "cat" roads and by falling to these roads. Prelogging and relogging also represent improvements in the logging of small wood. Logs with 5-inch tops often come into portable mills. More and more small wood is used every year. Some logging shows undergo as many as five loggings, each succeeding the other with equipment designed to handle smaller and lighter wood. Sawmills install gang saws for reducing "pee wee" logs to lumber, and cants slabbed in the woods by portable mills are delivered to resaws for further refinement. Concentration yards for lumber and cants from portable mills are making their appearance. They are usually located beside shipping facilities and are equipped with resaws, planers, and sometimes dry kilns. Utility pole and mine prop markets take much material of small diameter. Pulp mills in the State of Washington are using over 200,000 cords per year, some pieces as small as 4 inches in diameter. A fiber plant is reported to have accepted material 2 inches in diameter. Specialty poles are taken in limited numbers to 1-inch top diameters.

This small wood is expensive to handle, both in the woods and in the mills. To reduce handling costs, portable chippers are being developed to make chips in the woods for shipment to pulp or fiber mills. The quality of the chips desired, along with percentage of bark and needles permitted will determine the minimum size of tops or limbs to be handled.

The percentage of tops, branches, and leaves or needles that can be removed from the forest is not known. To determine how relatively important the logging debris is to the forest soil, the amount of annual litter must be known.

In farm woodlots, portable chippers may convert the small tops, limbs, and needles to agricultural mulch. The chips make an excellent soil conditioner, especially in hard clay soils, where addition of organic matter will break up the clay and make soil moisture more readily available for the crops.

The portable chipper if widely used in farm woodlots could produce the same conditions that litter gatherers have brought about in areas of Japan and Europe where all debris has been collected for fuel purposes (Fig. 1). The results have been loss of fertility of the forest soil, reduced tree growth, and perhaps on hilly land, accelerated soil erosion.

Intermediate cuttings at 5-year intervals, with the tops and limbs going into agricultural mulch, could almost duplicate litter gathering (Fig. 2). Since removal of the litter destroys a normal forest soil as thoroughly as repeated fires, it is necessary to consider how much removal is desired or permissible.

Limbs and limb-sized tops left in the forest cannot be considered as "waste." Instead they should be regarded as absolutely essential to the continued productivity of the forest (Fig. 3). Before decomposition of the litter begins it will shield the soil from direct exposure to the sun and from the compacting effect of heavy rain, also providing a little shade for the establishment of reproduction. After decaying and becoming humus it improves the soil structure, increases the water-holding capacity,

[1](Photographs from Japan by Donald J.Haibach) courtesy of H. B. Donaldson, Lt. Col, Inf., Chief, Forestry Division, Natural Resources Section, General Hdqtrs., Supreme Command for the Allied Powers, Tokyo, Japan.

FIG. 1.—*a*. A portable chipper being operated on thinnings in the Charles Lathrop Pack Experimental Forest in western Washington. *b*. A worker gathering litter in Japan.

FIG. 2.—*a.* Chipped thinnings from Charles Lathrop Pack Experimental Forest intended to be marketed as cattle bedding, poultry litter, or as a soil conditioner. (Photograpa by E. F. Marten.)
b. and *c.* Small wood, needles, and duff being removed from forests in Japan for fuel and agricultural mulch.

FIG. 3.—*a.* Thinned Douglas-fir, Charles Lathrop Pack Experimental Forest, with chipped thinnings returned to the forest floor. (Photograph by E. F. Marten.) *b.* Black pine plantation in Japan where litter has been completely removed. In many areas of Japan this practice has reduced the vigor and the growth of the forests.

FIG. 4.—Logging operation in Japan where all slash was removed for fuel. Heavy erosion is resulting. To minimize erosion on such clear cut areas in Japan, C. J. Kraebel, watershed management specialist, recommends that sufficient slash be left to cover the ground to a depth of at least five centimeters.

FIG. 5.—A 1949 logging show in western Washington where more stem material may be removed without exposing the hillside to erosion.

and enriches the soil. The circulation of nitrogen in the forest, removed from the soil by the tree, and returned to the soil as litter is of tremendous importance because it is the main source of nitrogen for the growing trees. While forest soils are not usually deficient in minerals they may be chemically bound in a form that the tree cannot use. Complete removal of the litter might prove disastrous (Fig. 4).

The opposite extreme is the leaving of great quantities of wood which decay only at the expense of the nitrogen in the soil and constitute a major fire hazard (Fig. 5).

The bole contains a negligible amount of ash and nitrogen and

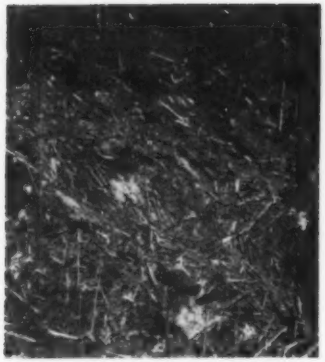

FIG. 6.—A 1949 logging show in western Washington where steep slopes are slightly eroding but stem material could be removed from the accumulations in the gullies.

therefore adds little nutrient value to the soil.

Between these two extremes there is a wide range (Fig. 6). To know the proper degree of utilization will require many years of observation in all types of stands. In open stands where limbs are not shed readily, logging debris may be an absolute necessity to the maintenance of forest soil. Logging debris and annual litter are the main sources of renewal of organic material in the soil from above ground. In open stands without a canopy cover and no true competition, there is little chance for development of a normal forest floor. Instead the soil surface may become hard and compact. Growth will decrease. The removal of litter in open stands, following logging, may be especially dangerous both in removing the source of continued nutrient supply and in exposing the soil to the hazards of accelerated erosion.

A few obvious generalizations are in order regarding intensity of utilization. First, if all of the litter is gathered the growth in the forest will fall off. Second, if a large quantity of wood is left in the forest it will take nitrogen from the soil, increase the fire hazard, and discourage seedling growth. Also, it is true that the leaves and branches contain the majority of the mineral matter in the tree. Therefore, it appears advantageous to remove the bulk of the wood material and to leave the leaves, branches, brush wood, and limb-sized tops on the ground, (as one silviculturist says) to "freshen the soil" (Fig. 7). Our present utilization of wood material in logging second-growth Douglas-fir is about 92 percent of logs measured to 8 inches and pulpwood to 6 inches.[2] We should concentrate on obtaining the unutilized 8 percent in initial logging and not on lowering diameter limits to take in the spindly tops and branches.

[2]Bulletins 2 and 4, Institute of Forest Products, Department of Conservation and Development, State of Washington, 1950.

FIG. 7.—A recent logging show in western Washington, where an intensive salvage operation has worked the right hand side of the logged area, material as small as 6 inches in diameter was removed. A little erosion is occurring where the slope was steep and the ground scarred by movement of logs. To remove any part of the few inches of slash remaining might result in increased erosion.

The results of current research will give us a better understanding of the importance of logging debris to the soil, but until such time as it does, care must be taken not to take the forest floor out of the forest.

Dollar Signs and Social Values

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FOR ONE REASON or another it has seemed necessary to place dollar signs on the social values provided by forests in order to justify the cost of protecting timber and managing stands for continuous production. Naturally this applies largely to public forest. The private owner does not bother to measure the social values from his forest land. He knows they are there, but they are not merchantable. The market for forest products gives him a direct measure of what he can spend for forestry.

A public agency, however, is in a different position. Costs in the form of expended appropriations are measured in dollars; hence the idea that benefits must also be measured in dollars to justify the costs. Just why this form of justification must be applied to forestry and river basin development while it is not considered in relation to public education or national defense is not entirely clear. It is done because it is required by act of Congress. It is required because the public has no adequate realization of the importance of social benefits and a measure in monetary terms is needed to provide this realization.

Short of direct monetary valuation a number of devices have been used to indicate the economic value of forests. Tons of forest products loaded on freight cars, millions of tax dollars received by local governments, man-years of employment provided by forest industries, dollars spent for hunting and fishing licenses, gallons of gasoline bought by tourists visiting the forests, sales of hunting and camping equipment to recreationists—all these and many other measures have been used. But these are not measures of net social value. With each is associated a social cost.

Take the case of forest employment as an example. Forests are said to be valuable because they provide more than three million man-years of employment annually. What does this really mean in terms of net social value? Employment is labor, and labor in the woods and mills is hard work. Because of the employment credited to the forests three million men get up at dawn every working day in the year, carry cold lunches to work, and labor for eight hours in dust, rain, or mud, in the din of noisy saws and planers, or on the hard seats of trucks or tractors, running an abnormally high risk of death or physical injury. This is the social cost of employment. On the other side is the opportunity to earn wages. But wages in themselves are of no value. They are worth while only because they can be exchanged for the goods and services on which life depends.

Finally we get down to the basis of economics: the production of goods and services at the lowest possible cost. Employment, or work, is only a necessary evil associated with production. It is not a goal in itself. If more work is required to produce a given volume of goods social costs have been increased but social values have not. Net social values have been decreased.

So we come back to the goods and services produced by the forests, and the problem of valuing them in monetary terms. These goods and services consist of timber and forage, scenery and recreational sites, a home for fish and wildlife, and watershed services that include reduction of sediment and floodwater damage and the regulation of stream flow.

The timber and forage produced can be given a monetary value directly, for these goods enter the market or are comparable to similar goods that are bought and sold. It is only necessary to calculate the increase in production resulting from the protection and management practices and apply expected unit market prices to these increased units of production. But it is important to limit the measure to the goods produced by the forest. The forest does not produce the fat sheep that graze there, nor the plywood or paper made from the timber. The forest produces forage and trees. These are the products to be valued.

The other goods and services produced by the forest do not enter the market, and the method used in valuing timber and forage cannot be applied to them. We call them social values because they are realized by the public in general, as contrasted to the market value of timber and forage. This does not mean that there is no social or public gain through an increased production of timber and forage, nor does it mean that there is no economic value in the creation of recreational opportunities or the prevention of floods. The distinction is in the way these benefits are distributed. This in turn, affects the way in which they can be measured.

In attempting to place monetary values on these so-called social benefits two difficulties are encountered. One relates to application; the other to theory. In applying the market-place concept of economic value to social benefits the principal difficulty is that many of the goods and services produced do not enter the market. Some do. The increased value of farm land that is freed from flood damage because of watershed developments can be measured by the capitalized value of the increased production which has a market value. The increased value of a reservoir whose useful life is extended can be measured by the reduced cost of reproducing it. Other reductions in flood damage to property can be similarly measured in monetary terms. But it becomes more difficult to assign a dollar value to water for human consumption. It requires considerable straining to assign a monetary value to the recreational benefits provided. And it becomes clearly impossible to assign a realistic value to the lives that may be saved through control of floods.

The same is true for the more intangible benefits such as stability of employment, stability of communities, or national security.

The theoretical difficulty is even more serious than the problem of application. The difficulty is that we are trying to measure something in units that are not applicable to it, as we would if we tried to measure length in pounds. We have been led into this by a failure to realize that value is a generic term, meaning something like worth. There are many kinds of values: aesthetic values, religious values, literary values, intrinsic values, market values. In attempting to place monetary values on the benefits from forests we have confused the last two of these and attempted to consider as identical two concepts that are quite different.

The early economists were puzzled by the paradox that an article which has great value in use, such as bread, may have a low value in exchange; whereas a diamond with almost no value in use has a very high value in exchange. The solution of the paradox is the factor of scarcity. To have either value in use or value in exchange, goods or services must be capable of satisfying human wants. But to have value in the market place, or exchange value or monetary value the good or service must also be scarce. The value in use or intrinsic value is the same for all people. It can be measured only in objective terms—in caloric content, in specific gravity, in candle power, in tensile strength, etc. Exchange value, on the other hand, is subjective, and depends on the intensity of human wants in relation to the supply of the good to satisfy them. It is expressed objectively by market price.

The greater the quantity of goods or services produced the greater the value in use or intrinsic value will be. But the greater the quantity the lesser the unit exchange or monetary value will be, assuming human wants remain unchanged. The total exchange valued may be increased, though the total exchange value will not increase proportionately to increased supply. And the total exchange value may actually decrease. Hence monopolies, burning coffee, and dumping agricultural surpluses.

To come back to the forests, what is our objective? Is it to create use value or exchange value; to increase the volume of goods and services to be enjoyed by society or to increase the monetary value of these goods and services? The two purposes are not consistent, and results cannot be measured in the same units. An increase in use values will not result in a corresponding increase in monetary values. This is the theoretical difficulty in measuring forest values in terms of dollars.

This is not intended to rule out entirely the cost-benefit calculations used for river basin developments and other public projects. It is probable that the increase in use values produced by these projects will not have a great effect on unit monetary values, since they will not add greatly to the total supply of similar goods and services. But it is intended to indicate the limited application of cost-benefit ratios to projects from which many of the benefits are social in nature and not subject to valuation in monetary terms. For hydroelectric developments the cost-benefit analysis may be the best means of judging the relative worth of alternative projects. But for the treatment of forest lands it may have a very limited application.

If we rule out exchange-value measures for programs designed primarily to produce use values, what other measures of worth can be used? In the field of radio the applause meter and the Hooper rating system have been employed to measure intangible values. In universities elective courses have been provided. One can select his own place of worship. There are many ways of expressing individual subjective values other than in the market place. And the most important of these is through the right to vote. Here we find the true complement to the market. In the market the citizen votes with his dollars, expressing his monetary valuation of many goods and services, and directing production into the lines that will satisfy his wants. In the voting booth the citizen casts his ballot on issues that cannot be expressed completely in monetary measures, though these may enter in. It is here that direction is given to public programs designed for social betterment.

Since public forestry programs depend on appropriations, forestry policy must conform to the will of the people expressed through their elected representatives. The real question is whether the people need incomplete and sometimes unrealistic monetary measures of costs and benefits to render sound judgment on forestry projects or whether they can be trusted to make wise decisions without them. Perhaps all public projects designed to produce intangible social values should be determined on a basis similar to that used in providing for public education, police protection, or national defense. Perhaps those who know the social values from forestry and who are convinced of its value could do more to further their cause by dropping a defensive attitude that relies on dollar values and concentrate on informing the public of the real meaning of these social values. Then the ballot box rather than the market place would provide the means of expressing the public will.

Differentiation of Woods of Southern Pines by Chemical Means[1]

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SOUTHERN PINE woods cannot be distinguished from one another on the basis of their structure. Variation in the density of these woods, however, is recognized, and is one of the criteria which determine the grades by which they are marketed for structural purposes.

There is also a great variation in texture, color, and resinous content of these woods, but the differences between individual trees within one species are considerably greater than those between averages of different species; therefore, this variation cannot be relied upon for diagnostic purposes.

Identification of woods by species is of economic as well as academic importance. Many woods of different structures contain similar chemical constituents, whereas some others, which are structurally similar, have been found to be distinctively different in the chemical nature of their extractives. Such findings might at first be purely of scientific interest, but sooner or later they may lead to practical applications in wood utilization.

The purpose of this study was to ascertain the chemical differences in the woods of the southern pines, so that such differences, if significantly and consistently present, may be utilized in developing a practical method for their distinction. It was most desirable that such a procedure be easily adaptable to conventional apparatus and instruments, or to such equipment as can be conveniently improvised.

The authenticity of the wood specimens used in this study was of the utmost importance, since there is no means of identification by inspection. Only when specimens were received in the form of unpeeled bolts or sections containing bark, was verification of certain species possible. In addition to those which the writer obtained locally and those which he collected during several field trips to Virginia and Florida, it was also necessary to make special requests for authentic specimens.

Inorganic Analysis

In trying to distinguish the woods of the four commercial southern pines[2] chemical analyses were made in both organic and inorganic composition. On the basis of previous work in qualitative inorganic analysis, it was believed that results, which showed the presence or absence of certain elements, could not be relied upon for diagnosis. This was generally confirmed by the experiment. Since there has been such scanty information on the quantitative inorganic analysis of woods in general, it was advisable to study the pine woods from this aspect. Determination of the mineral components except manganese was carried out according to the procedures by Coile (*2*). The analysis of manganese followed the periodate method of Piper (*4*).

The variation in the content of the mineral components was analyzed statistically. The manganese content was most widely varied. It was found that the variation ascribed to the species was insignificant while that ascribed to the site, in the case of manganese, was highly significant.

The manganese content of the woods of the southern pines studied ranged from less than 0.0001 percent for specimens obtained from Florida to 0.006 percent for specimens obtained from the Piedmont and mountainous regions of North Carolina and Virginia. In the determination of percentages of calcium and others, the organic material was eliminated by the complete ignition of the wood samples in a muffle furnace. Here the manganese content of the wood is reflected in the

SOME MINERAL COMPONENTS OF THE WOOD SAMPLES

Region	Sample	Percent of ash[1]	Excess base[2]	Percent of CaO[3]	Percent of Mn[3]
North Carolina	Loblolly pine	.283	16.7	49.3	.0057
		.320	18.4	51.7	.0051
	Shortleaf pine	.277	18.3	49.6	.0043
		.254	23.7	37.8	.0048
	Longleaf pine	.312	19.3	47.9	.0052
		.325	19.1	49.3	.0048
	Slash pine	.297	16.9	45.6	.0053
		.301	17.8	47.8	.0054
Georgia	Loblolly pine	.385	20.3	50.9	.0024
		.346	19.6	50.3	.0016
	Shortleaf pine	.313	26.1	40.3	.0021
		.322	19.4	47.6	.0029
	Longleaf pine	.196	24.5	43.4	.0028
		.187	20.7	45.8	.0013
	Slash pine	.236	23.7	36.9	.0015
		.245	21.5	38.5	.0021
Florida	Loblolly pine	.297	23.5	48.4	.0008
		.218	25.2	38.8	.0000
	Shortleaf pine	.227	25.2	37.4	.0000
		.239	24.6	36.9	.0000
	Longleaf pine	.205	22.7	38.5	.0008
		.211	19.5	30.1	.0011
	Slash pine	.187	17.4	48.6	.0000
		.158	22.6	44.8	.0000

[1]Based on over dry weight of wood.
[2]Equivalent number of ml. of 1N. HCl which is required to neutralize one gram of the ash.
[3]Based on the weight of the ash.

[1]From a thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Forestry in the School of Forestry, Duke University, Durham, N. C. This study was conducted under the direction of Dr. E. S. Harrar of the School of Forestry.

[2]Loblolly pine, *Pinus taeda* L.; shortleaf pine, *P. echinata* Mill.; longleaf pine, *P. palustris* Mill.; slash pine, *P. caribaea* Morelet.

color of the residual ash. Woods with high manganese content, after ignition, left dark purplish-brown ash. Those with low manganese content yielded light-colored to almost white ash, provided they did not contain appreciable amounts of other dark-colored inorganic compounds.

Slash pine naturally occurs mostly in the lowlands of Florida and to some extent in other low elevations of the Coastal Plain south of Charleston, S. C. In its natural occurrence, it is entirely lacking in the Piedmont and the mountainous regions of the southeastern states. Loblolly pine, on the other hand, is but rarely found in the lowlands of Florida. It commonly occurs in the Piedmont region. Geographical differences are found in the natural occurrence of the four species of southern pine studied. It is worthwhile emphasizing the importance of selecting trees on atypical sites as well as on typical sites. For example, had these two species been studied only on typical sites, the significance of site attributes would have been overlooked and the apparent variation due to species overemphasized. Fortunately, a few specimens of plantation slash and longleaf pines, and a few specimens of loblolly and shortleaf pines from Florida were available for this study.

The results indicate that the manganese content, as well as other mineral components, was influenced more by site than by species.

Organic Analysis

Chemical variation in woods is mostly ascribed to extraneous compounds. Although it has been shown that the nature of lignin and the cellulosic components of woods are varied, so far such differences are found only between the two principal plant groups: the Gymnosperms and the Angiosperms.

Attention was therefore focused upon the differences of neutral wood extractives. Water, ether, and alcohol were used for extraction of wood drillings. For the qualitative analysis carried out, it was found that wood drillings were sufficiently finely divided for extraction, and, therefore, wood flour of the conventional size was not used.

Spot tests (*3*) were made for certain probable groups of organic compounds. The amount of wood sample was limited by the capacity of the apparatus available in the laboratory. Since the extractives usually constitute less than 10 percent of the sample, the conventional and fully systematic analysis was not feasible.

The results of the spot tests did not differentiate the woods of the southern pines, since they were found to contain the same types of compounds. However, they led to the spectrophotometric study which made possible the separation of the heartwoods of the four species.

It has been found that differences in the methoxyl contents of certain components of woods do exist. If the phenolic compounds of the pines differ in the substitution of the -OR groups in a manner similar to that found among other components of woods, a spectrophotometric analysis should be of diagnostic value.

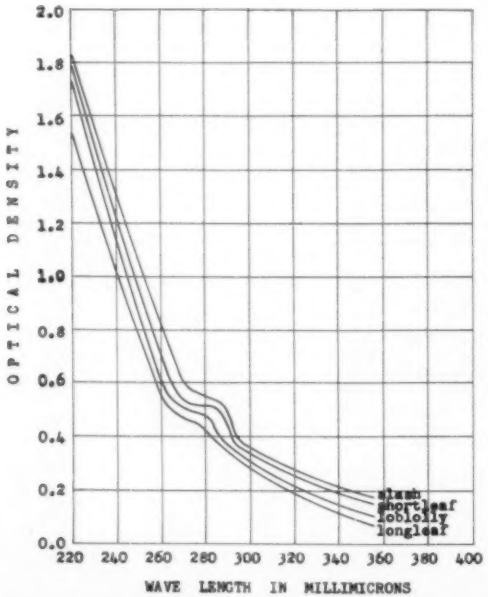

FIG. 1.—Absorption spectra of diluted alcoholic extracts from sapwood of southern pines.

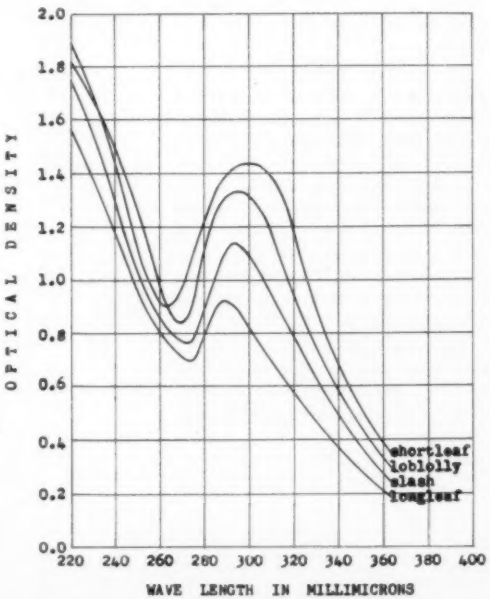

FIG. 2.—Absorption spectra of diluted alcoholic extracts from heartwood of southern pines.

Spectrophotometric Study

The spectrophotometric analysis was carried out with the use of a Beckman Spectrophotometer. Isooctane and ethyl alcohol were used for the solvents in the extraction of the wood samples. Considering the cut-off limits of these solvents the absorption spectra were measured in the region between wave lengths 220 to 700 millimicrons. The absorption spectra of the alcoholic extracts, because of their color, were measured both in the regions of the wave lengths 220 to 390 millimicrons and 400 to 700 millimicrons.

Thirty-seven samples of the four species of southern pines were used in the study. Since it was not feasible to determine the quantities of the compounds involved, no attempt was made to compute the extinction coefficient in each case. Instead, the measured optical densities were plotted against the corresponding wave lengths, and the dilution (based on the initial extract) of each solution was recorded.

The absorption spectra of the iso-octane extracts revealed similar selective absorption for the four species of woods. The visible spectra of all colored extracts showed only a general absorption. The ultra-violet absorption spectra of the alcoholic sapwood extracts indicated that sometimes selective absorption can scarcely be detected in all species (Fig. 1), but this occurrence was not constant. The ultra-violet absorption spectra of the alcoholic heartwood extracts of different species showed significant and consistent differences in the positions of maxima and approximate differences in the extinction values (Fig. 2). The maxima in the case of longleaf, slash, loblolly, and shortleaf pines were at 288, 292, 298 and 300 millimicrons, respectively. It should be noted that these compounds apparently have considerably higher extinction coefficients than those of rosin acids, which seem not to interfer with the absorption spectra at such concentrations.

Although the chemical formulae and detailed structures of the compounds in question are not yet known, it is likely that they possess a common structure but have different substitution. The shifting wave lengths and the apparent increase in extinction could very well be caused by differences in the number of positive auxochromes in the molecules. Examples of positive auxochromes are OH, NH_2, NHR, NR_2, and OR, where R represents organic radicles such as CH_3, C_2H and others (*1*). This does not necessarily mean that the phenolic compounds found in the heartwood of different species of southern pines differ from each other by the number of OH or OCH_3 groups present in the molecules; it only enumerates some of the possibilities.

Conclusion

The variation in the percentages of mineral constituents of wood cannot be relied upon as distinguishing features of the southern pines, because such differences are by far more attributed to the nature of the habitats on which the trees grow. Heartwoods, of longleaf, slash, loblolly, and shortleaf pines can be distinguished with a high degree of probability by absorption spectrophotometric determination in the ultra-violet region. For all species, heartwoods can be separated from sapwood by the spectrophotometric method and also by color reaction with ferric chloride.

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A Warning to Our Readers

Some readers of the JOURNAL OF FORESTRY may receive, or at least occasionally see, copies of a mimeographed publication called *Bulletin IAI*, published by the Institute for International Collaboration in Agriculture and Forestry, with headquarters at Prague, Czechoslovakia.

This bulletin is a "monthly information journal" for the Institute mentioned above. It has an English edition the editor of which is listed as Miss J. Elsnerová. Beginning with the January 1951 issue, the bulletin is to appear every two months as a supplement to the journal *Interagra*, also published by the Institute. According to the editor, "The supplement will carry news mostly in English with Russian translations of the titles."

For the most part, the contents of the bulletin consist of "items of news and statistics" which purport to be quotations or reproductions of statements, or digests of longer articles, lifted from newspapers, scientific periodicals, and farm and forestry magazines the world over.

A recent issue of *Bulletin IAI* contained several quotations about forestry from sources which could be easily verified. On checking up on the professed quotations, I found such gross distortions that it was evident that the publication is issued as a medium for Communist propaganda.

Accordingly, readers of the JOURNAL OF FORESTRY are herewith warned to be on their guard in respect to the reliability of the Institute for International Collaboration in Agriculture and Forestry.

HENRY CLEPPER,
Managing Editor.

Galactan in Western Larch Wood[1]

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A quantitative determination was made by the U. S. Forest Products Laboratory of the galactan in western larch woods and sawmill refuse to obtain data useful to those contemplating commercial ventures designed to produce and market various materials made of galactan.

Galactan in the lateral roots of virgin trees ranged from approximately 11 to 23 percent, based on the weight of the oven-dry wood. The galactan content of slabwood from virgin-growth butt logs was found to be about 14 percent; from the middle logs, 4.2 to 10 percent; and from the top logs, about 5 percent. Butt logs from fire-killed virgin trees contained approximately 9 to 16 percent of galactan; the middle logs, 6.6 to 12.1 percent; and the top logs, 6.6 to 7.8 percent. Butt logs of stand thinnings contained from 3.8 to 5.3 percent of galactan; the middle logs, 2.1 to 3.5 percent; and the top logs, 2.2 to 3.1 percent.

WESTERN LARCH differs from most other species of wood in that it contains appreciable quantities of galactan in the form of a hot-water-soluble polymer of arabinose and galactose (*3, 7*). This form of galactan has a re-occurring building unit which consists of one molecule of arabinose and six molecules of galactose (*5, 6, 7*). It is thus an arabogalactan polymer rather than galactan, as commonly designated. Borgin (*1*) found that galactan from western larch consists of two components having molecular weights of 100,000 and 16,000, respectively.

The arabogalactan, on hydrolysis with acid, can be converted to arabinose and galactose. In turn, the arabinose portion can, under more drastic conditions, be changed by means of acid to furfural. The galactose portion is oxidizable by means of nitric acid to mucic acid, which is insoluble in water or aqueous solution of nitric acid. This is the basis for the quantitative determination of galactose in the material commonly designated galactan.

Mucic acid finds uses in the manufacture of intermediate organic chemical products; among them are baking powder, effervescent salts, artificial yeast, an accelerator of yeast growth, a component of esters and salts for pharmaceuticals, in disinfectants, in acidulants, an ingredient of soft drinks, a component in electroplating baths, and mordents for dyeing textiles. Most of these uses require no large tonnages of mucic acid. Accordingly, new uses would have to be developed before large-scale production of mucic acid would be economically feasible.

Virgin-growth western larch heartwood appears reddish brown in color on the cross-sectional surface of the stump and butt log. If the galactan content is high, the reddish-brown color is tinged with blue. On exposure of the cut to summer heat and sunlight, the galactan accumulates in the form of a white powder on the surface of the stump and the cross-sectional face of the butt log. High concentrations of galactan are generally associated with ring shake and rot in the butt log of western larch (*2*). The presence of these two defects led to the practice of loggers to place the top cut for the long butt sufficiently high up the tree to eliminate physical indications of the shake and rot. In recent years, loggers have developed uses for the less intense ring-shake stock and, as a result, the discarded butts are becoming shorter and less frequent.

Previously the Forest Products Laboratory showed that a limited number of samples of wood from the butt log of virgin-growth western larch had an average of 17.9 percent of galactan, and samples of wood from the top log of the tree had an average of 5.9 percent of galactan. In contrast, samples of wood from the butt log of second-growth western larch had an average of only 5.6 percent galactan.

The object of the present work was to determine the percentage of galactan in western larch wood discarded during log-harvesting and lumber cutting operations in Montana, Idaho, and Washington as a source of information for anyone who might consider exploring the feasibility of utilizing the material.

Wood Types Tested

Samples of western larch wood that were analyzed consisted of (a) roots; (b) cross sections from the butt, middle, and top parts of fire-killed trees; (c) cross sections from the butt, middle, and top part of trees removed in thinning operations; and (d) samples of slabwood from different heights of the trees. The wood samples were collected and shipped to the laboratory in December 1948 by the Forest Utilization Service of the Northern Rocky Mountain Forest and Range Experiment Station.

The root samples were collected along a highway constructed in 1948, north of Seeley Lake on the Lolo National Forest. They were from one of the largest virgin larch stands in the Northern Region. Many of the trees in the stand ranged from 300 to 400 years in age. The sampling was confined to lateral roots as it was impossible to remove the main roots of the stumps. Three root samples which differed in surface appearance as grayish, bark-covered, and black, respectively, were analyzed.

The slabwood samples were obtained at a sawmill near the place at which the root specimens were collected and represented the same type of virgin western larch as the roots. The test samples analyzed were cut from the slabs at 0, 6, 16, 32, and 64 feet above the stump of the tree.

Samples of fire-killed virgin-

[1]This work was done in cooperation with the Forest Utilization Service unit of the Northern Rocky Mountain Forest and Range Experiment Station, Missoula, Mont.

growth trees were collected on the Colville National Forest in northeastern Washington. They were taken from an estimated area of 250,000 acres, which was burned over in 1929. The fire-killed trees were still in a relatively good state of preservation, as shown by visual examination of the samples, and constitute a major utilization project of the region. Samples from three trees designated as Nos. 3, 4, and 6 were analyzed.

Samples from thinning operations were taken from second-growth stands of western larch 60 to 80 years of age on the Cabinet National Forest near Noxon, Mont. This area is located on the eastern fringe of the western white pine stands and is considered one of the best western larch sites in the region. It is representative of the type of stand on which thinning would be advantageous. The average diameter of the trees was approximately 6 inches at breast height and their height was approximately 70 feet. Samples from three trees designated Nos. 1, 9, and 13 were analyzed.

The wood samples were reduced to sawdust and the coarse particles eliminated by means of a 20-mesh screen.

Methods and Results of Tests

Galactan in the wood was quantitatively determined by Schorger's method (*4*). It involves treating a given weight of air-dry unextracted wood sawdust of known moisture content with boiling 3 percent nitric acid, filtering, washing the residue with boiling water, adding the washings to the original acid filtrate, concentrating the filtrate, oxidizing the galactose in the concentrated filtrate to mucic acid by means of 25 percent nitric acid, concentrating the mixture, adding a known weight of mucic acid to start crystallization of the mucic acid in the filtrate, and allowing to stand 48 hours. The mucic acid was filtered off, washed, dried, and weighed. A correction was made for the mucic acid added and the remainder was multiplied by the factor 1.2 for conversion to galactan.

Analytical data for the root and slabwood samples are recorded in Table 1. Yields of galactan from the root samples Nos. 1, 2, and 3 were 23.0, 10.7, and 16.9 percent, respectively. Yields of galactan from the slabwood at 0 feet height were 14.1 percent and gradually decreased to 4.7 percent at 64 feet above the stump. Being slabwood, the samples contained considerable sapwood which has less galactan than heartwood. The concentration of the galactan decreased with height above the stump and confirmed the results of previous analysis of virgin western larch wood.

Galactan yields of the butts of the three fire-killed trees were 13.5, 15.7, and 9.2 percent, respectively, as shown in Table 2; those of the samples taken from the middle of the corresponding trees were 9.3, 12.1, and 6.6 percent; and those from the top of the corresponding trees were 7.8, 7.1, and 6.6 percent.

Galactan yields from the butts of the three thinning trees ranged from 3.8 to 5.8 percent; those from the middle ranged 2.1 to 3.5; and those from the top ranged from 2.2 to 3.1 percent.

Radial distribution of the galactan in a tree was also determined. Cross sections were cut from the butt, middle, and top of the fire-killed western larch tree No. 3 for the analytical work. Sectors removed from the cross sections were divided, parallel to the boundary between the annual growth rings, into outside and inside parts. The radial dimensions of the two parts are shown in Table 3 in connection with the analytical data. Galactan content was 15.1, 10.0, and 9.5 percent in the outside part of the sectors from the butt, middle, and top, respectively; it was 8.3, 6.0, and 5.5 percent in the inside part of the corresponding sectors.

Obviously, the roots, the slabwood from the lower 6 feet of the

TABLE 1.—PERCENTAGE OF GALACTAN IN WESTERN LARCH[1]

Type of material	Number of sample	Galactan	Type of material	Height of sample in tree	Galactan
		Percent		*Feet*	*Percent*
Root sections	1	23.0	Slabwood	0	14.1
	2	10.7		6	10.1
	3	16.9		16	4.2
				32	6.6
				64	4.7

[1]Based on weight of oven-dry wood.

TABLE 2.—PERCENTAGE OF GALACTAN IN WESTERN LARCH[1]

Type of material	Number of tree and location of sample	Galactan	Type of material	Number of tree and location of sample	Galactan
		Percent			*Percent*
Fire-killed trees	3		Thinnings from second-growth stand	1	
	Butt	13.5		Butt	5.5
	Middle	9.3		Middle	2.1
	Top	7.8		Top	2.2
	4			9	
	Butt	15.7		Butt	3.8
	Middle	12.1		Middle	2.3
	Top	7.1		Top	2.5
	6			13	
	Butt	9.2		Butt	5.8
	Middle	6.6		Middle	3.5
	Top	6.6		Top	3.1

[1]Based on weight of oven-dry wood.

TABLE 3.—PERCENTAGE OF GALACTAN ACCORDING TO RADIAL LOCATION IN SECTIONS OF FIRE-KILLED WESTERN LARCH[1]

Section of tree	Location of sample[2]	Radial dimension of sample	Galactan
		Inches	*Percent*
Butt	Outside	5	15.1
	Inside	4	8.3
Middle	Outside	3	10.0
	Inside	5	6.0
Top	Outside	2	9.5
	Inside	3	5.5

[1]Based on weight of oven-dry wood.
[2]Each section was wedged-shaped and divided into inner and outer samples with respect to radial direction.

butt log, and the butt logs of virgin western larch trees are rich in galactan. The stumpwood, which is located between the roots and butt log, presumably also contains galactan in yields ranging from about 10 to 23 percent. On the other hand, trees removed by thining operations are a poor source for galactan. Killing of the trees by forest fire appears to have had little if any effect on the galactan content of the wood.

On the basis of present information, the maximum yield of mucic acid derivable from western larch would be roughly 83 percent of the galactan values reported.

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Ecological Succession on Abandoned Farm Lands and Its Relationship to Wildlife Management [1]

A study of plant and animal succession on abandoned farm lands, covering the 25-year period immediately following abandonment, was made in Washtenaw County, Mich. during the school years 1939 to 1940 and 1940 to 1941, the spring of 1946, and from the fall of 1946 through the winter of 1947. Emphasis was placed upon the effects of plant succession upon common birds and mammals, the ring-necked pheasant and cottontail rabbit in particular, and the use of abandoned lands in various stages of succession by these animals.

Areas selected for study represented various soil types, different types of cropping in the final year of use, and different lengths of time since abandonment. The vegetation present on each area was analyzed on a series of milacre quadrats. On each quadrat an ocular estimate was made of the percentage of the area covered by each plant species. The coverage percent on those quadrats on which each plant occurred, combined with the frequency of occurrence, showed in the series of quadrats the density and distributional arrangement of all plants on each area studied. Small mammal populations were sampled by the use of snap traps, bird populations were determined relatively by observations made by walking on circuits through each area, and the relative numbers of larger mammals and pheasants were determined by direct observations and by track counts in the snow. The analysis of changes in plant and animal communities was facilitated by classifying cover types on a successional basis.

Results of this study indicate that initial stages and the rate of their succession are largely determined by the character of the final crop. Later stages are influenced primarily by soil, and all stages may be influenced from time to time by fire and other disturbances. On land previously in either cultivated crops or small grain crops, successional stages occur in the following sequence: Annual-biennial stage, perennial grass stage, mixed-herbaceous perennial stage, shrub stage, and intolerant tree stage. Small grain lands are approximately one year ahead of cultivated lands in this series. On hay lands the annual-biennial stage is lacking, and early stages of succession are influenced by the perennial hay plants. As a result, succession proceeds at a much slower rate on hay lands than on either cultivated or small grain lands.

Variations in bird and mammal populations are closely associated with changes in the vegetation. Seed-eating birds and prairie deer mice, for example, make extensive use of the initial stages; insectivorous birds and meadow mice are common during the middle stages; and a variety of birds, short-tailed shrews and white-footed mice occur commonly during later stages. Pheasants find suitable food conditions principally in early stages of succession, whereas cottontail rabbits utilize almost every stage that was studied. The general trend of succession, however, is toward forest conditions that favor deer, ruffed grouse, and gray squirrels, rather than pheasants or even rabbits.

Small, uncultivated areas are an important part of both ring-necked pheasant and cottontail rabbit range because they provide requirements that are frequently lacking on adjacent farm lands. Nevertheless, large, continuous blocks of abandoned farm lands produce few pheasants. They require intensive management in order to provide for all the needs of this bird. Cottontail rabbits, on the other hand, found abandoned lands favorable throughout the period included in this study.

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[1] Abstract of thesis, for partial fulfillment for Ph.D. degree, University of Michigan. 1950.

Notes

Foliage Treatments Reduce Early Mortality of Longleaf Pine Planted on Adverse Sites

The generally poor initial survival of longleaf pine seedlings (*Pinus palustris* Mill.) planted on adverse sites is often blamed on the drying out of the seedlings from continued transpiration before the disturbed roots can make up the water loss. This explanation seems especially likely because longleaf usually develops an abundance of long needles by the time it is one year old.

Two methods of reducing transpiration—clipping off part of the plume of needles and coating the foliage with an emulsion—were recently tested at the Harrison Experimental Forest in south Mississippi. Standard root-pruned 1-0 longleaf nursery stock was given the nine combinations of treatment shown in Figure 1. The first of the two foliage coatings tested was prepared by beating up 40 grams of U. S. P. lanolin per liter of water, and the second by using one-third liter of the trademarked emulsion Dowax per liter of water. Degree of clipping was measured in terms of the proportion of the length of the needle tuft removed. Needles were clipped before the seedlings were immersed in emulsion (to root-collar- depth).

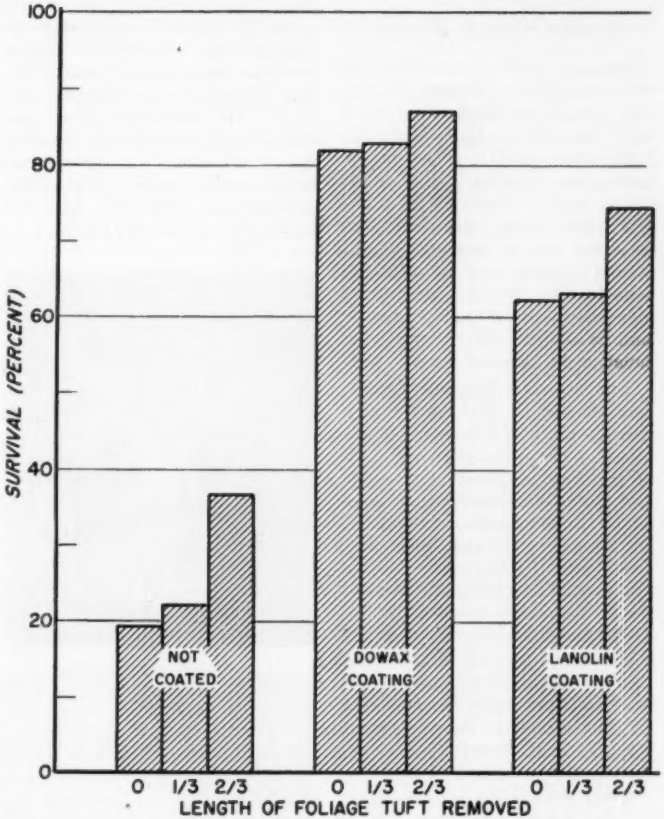

Fig. 1.— Survival of longleaf pine seedlings 36 days after planting on a dry, sandy site in southern Mississippi.

Test seedlings were set out on a deep sandy soil on March 2, 1950, immediately after treatment. The severeness of the site and the lateness of the planting date made the experiment analagous to a drought test. Although 8½ inches of rain fell in the first 36 days after planting, there were 20 days of this period when the top 6 inches of sand were extremely dry.

Survival 36 days after planting varied significantly with treatment. Seedlings coated with either emulsion survived significantly better than uncoated seedlings, and seedlings with foliage clipped survived significantly better than unclipped seedlings. No significant interaction between foliage coating and foliage clipping was detected. Figure 1 shows survival percents for the various treatments at the end of 36 days.

Comparison of lanolin with Dowax is pointless, since each was tested in a single arbitrary concentration that might accidentally have been more nearly optimum for one than for the other. Seedlings with two-thirds of the length of the needle plume clipped did much better than those clipped one-third. Many short needles were untouched by the light clipping, while practically all were affected by the heavy clipping, which therefore removed more than twice as much needle tissue as the light clipping did.

A combination of clipping and dipping gave the best results on the extreme site of this test. Under less adverse moisture conditions, however, foliage coating alone might have corrected the moisture imbalance, and the addition of clipping might have lowered survival by reducing the amount of stored food and the capacity for photosynthesis.

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We Present

Robie Mason Evans

Regional forester in charge of the Northeastern Region for fifteen years, Robie Mason Evans laid aside his official duties July 31, 1949, after more than 39 years of continuous devotion to the activities of the U. S. Forest Service. He is an outstanding example of the backbone, sinew, intelligence, and ability inherent in those men who have brought the organization to a high standard of public service and in so doing have contributed much to the cause of conservation.

Bob is a New England Yankee, born August 7, 1884, in the elm-shaded village of Fryeburg, Maine. Much of the quiet purposefulness of the New England countryside and the ruggedness of snowbound winter went into the formation of his character. He was educated at Dartmouth College, where he was graduated in 1906, and at Kimball Union Academy, Meriden, N. H., where he taught for the first two years after leaving Dartmouth. The profession of forestry having fired his imagination, he completed his studies at the Yale School of Forestry and secured his M.F. degree in 1910.

After receiving appointment as forest assistant in the Forest Service, the young forester headed West for his early national forest training. The mode of life of those far away places in the Oregon and northern California back country were at first strange to a New Englander, but he must have adapted himself pretty well, for by 1916, he became supervisor of the Whitman National Forest at Baker, Oreg.

In 1922 he married Ethelyn Hull of Portland, Oreg., and that same year was brought back East to assist in the organization of the growing eastern national forests and in some of the states relations work then developing. He served as assistant district forester for twelve years in the old District 7, embracing twenty-five eastern and southern states from Maine to Florida and including Puerto Rico, and had a great deal to do with the introduction and development of Clarke-McNary law administration in that area. During the 1920's, when the eastern national forests were experiencing growing pains, Bob also took the leadership in the formulation of

ROBIE MASON EVANS

policies and plans for the management of the national forest timber resources and the development of the timber sale program, the business of practicing forestry in the woods.

During the depression years of the 1930's he was responsible for the selection and hiring of some 400 technically trained men to guide the cultural work in the national forest Civilian Conservation Corps camps and the development of the techniques to be employed. About that time, also, under Gen. Hugh Johnson's NRA Blue Eagle, he helped formulate the lumber code—a job so well done that even after NRA was declared unconstitutional by the Supreme Court many of the operating lumber companies continued to practice the code.

Eastern forest acreage increased. There was great expansion in the field of state cooperation. From Maine to Texas the workload built up, until in 1934 it became necessary to divide it. Region 7, as it is known today, comprising the fourteen northeastern states and seven national forests, was split off. Evans was selected to head up the administration of Forest Service programs in this territory as regional forester. Within this territory, 35 percent of the nation's population lives and works, largely preoccupied with its own pursuits, and containing at one time only isolated islands of active conservation interest. While Bob would be the last to claim any personal credit, the expanded interest in the East in some of our practical forestry problems during the years he spent as assistant and later as regional forester has marked a noteworthy advance in conservation thought and action, and his personal leadership and general administration played an unquestioned part in this broadening development.

To list and evaluate the many accomplishments during Evans' fifteen years as regional forester are beyond the limitations of this brief presentation. Woven throughout his administration is the warp of New England conservatism and the woof of his determination to build soundly for long service. Yet the pattern is brightly colored by Yankee shrewdness and foresight coupled with the cooperative spirit and square shooting which are such an important part of steady progress. The result is a fabric which has worn well because it fits the physical and social climate of this part of the country.

But the job of regional forester is not an easy one. During the 1930's there were more than 500 CCC camps in old Region 7, a terrifically complicated administrative task as anyone will testify who supervised even a dozen. The New England hurricane of September 1938 left in its wake more than fallen trees; Bob Evans got to work on the emergency and helped set up the Timber Salvage

Administration. The war brought on complicated and top secret tasks connected with organizing the aircraft warning services in the more remote sections of the region, considered to be closer to a potent German air force than any other part of the country. Intensified forest fire protection was extended to the enormous military and manufacturing installations in the Northeast. The Timber Production War Project was organized at the request of the War Production Board to facilitate rapid production of forest products needed in the war effort. For all these extra curriculum activities key personnel was furnished from the Region 7 organization. Production of forest products from the national forests rapidly went up. Thus through depression, recovery, war, and postwar activities, Evans steered a skillful and safe course with steady hand.

Bob Evans had no hobby quite so engaging to him as the Forest Service, its work and the people in it. He rode that hobby to good purpose through the years. Yet withal, his character is notable for kindliness, fair dealing, loyalty to his associates, and a keen interest in his fellow men which have drawn folks to him. His engaging personality constantly flashed through the more sombre drapes of official work with bright and sunny warmth and a keen sense of humor. There was always time for a story or anecdote in spite of the heavy load of responsibility. He bowls and golfs and gardens with success and gets a bang out of it. He is a genial conversationalist and a master at the delicate art of concocting the dry martini; an evening at the Evans' home is something to be cherished.

M. A. MATTOON.

In Appreciation
Norman E. Hawes
1906-1950

Conservation lost a true friend when Norman E. Hawes died on April 16, 1950, after a prolonged illness of more than a year.

He was born in Boston, Mass., on February 23, 1906. From there his family moved to Chicago, later to Fair Hope, Ala., in 1913. There, as a boy, he acquired an interest in trees that led him to his life's work.

Norman attended the Washington and Lee University and was graduated with honors in 1929, a Bachelor of Arts. He received a Master of Forestry degree from Yale in 1932. In his student years, Norman was known as a keen student, with a great desire to delve into unknowns. He was selected to go on a Yale Botanical Expedition to the West Indies. This experience made a deep impression on him, for he made plans to return some time with his family.

In May 1933 Norman Hawes took his first government job as superintendent of a CCC camp in Sugar Grove, Virginia. Here he worked for C. L. Graham, present supervisor of the White Mountain National Forest. Following this assignment, Norman was employed in a variety of jobs for the U. S. Forest Service, with the exception of a short period in 1945 and 1946 when he worked for the Census Bureau (and developed a program for collecting forest-products statistics in eight southern states).

NORMAN E. HAWES

His assignments with the Forest Service involved service at Region 8 and at three experiment stations, the Southern, Southeastern, and Northeastern. His last assignment was at the Northeastern Forest Experiment Station, where he served from August 2, 1946, until his death.

In these assignments he worked with planting crews, handled erosion-control work, supervised forest-influence research work in stream flow and erosion, directed stand-improvement work on national forest land, conducted forest-management research on thinning, growth, and yield studies, conducted surveys in lumber production and factors affecting production, and supervised land-use studies for flood and sedimentation control.

All these experiences gave Norman a wide working knowledge of forestry. And he developed fine qualities of leadership. He had a keen interest in people, and sought to develop the talents of those who worked under him. His sincerity, his patience, and his methodical attitude were inspiring. Even through his long illness his interest in forestry was keen.

Norman Hawes was a member of the Society of American Foresters, American Association for the Advancement of Science, American Geophysical Union, American Geographical Society, and American Ecological Society.

He is survived by his wife, Mary Hawes, who shared his interest in forestry, and three splendid children; Betty, 12, Norman, 9, and Kendra, 4. They reside at Narbeth, Pennsylvania.

EARL J. ROGERS,
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Reviews

Forest Management

By Herman H. Chapman. XIX 582 pp. The Hildreth Press, Bristol, Conn. 1950. $6.

This text is a revision of an earlier edition of the same title published by the J. B. Lyon Co. in 1931. However, it has been largely rewritten and much new material introduced. The dedication to the principles of a free, competitive, democratic economy is the basis of the author's aproach to the field of forest management. Business and economic principles are emphasized throughout the book. It is written with particular reference and application to conditions of American forest management.

There are three parts to the text. The first is concerned with the place of forest management in forestry and consists of six chapters. The second part deals with forest organization and includes eight chapters. Part III is on timber management plans and contains sixteen chapters. There appears an excellent balance of space devoted to the three parts. The organization of subject matter is in fine detail and extremely complete. Altogether this text provides the most comprehensive coverage of the field of forest management yet written. Part I should make clear to either the student or layman the place of forest management in the field of forestry. Chapman has succeeded in developing a directness of style which makes his writing extremely efficient and effective. The reader will find few sentences or paragraphs not loaded with facts or principles. This makes careful reading mandatory.

To those interested principally in forest regulation, Part III contains the real meat of the text. Here Chapman develops fully the principles of rotation, cutting cycle, and the normal forest. Area and volume methods of regulation are discussed for both selection and even-aged forests. Basic European regulation methods and formulae are presented in sufficient detail to make them understandable and useful.

Considerable emphasis is placed on the management of forest lands for multiple use, particularly for park, recreational, wildlife, and protection purposes. This seems well in line with the modern trend of forest management concepts.

Treatment of management plans is new and up to date. One is given the feeling that the management plan is dynamic and flexible, not something to be concocted from a stereotyped outline.

Certainly an outstanding feature of this text is its newness and comprehensive coverage of forest management literature. Over 1,200 selected references are cited, many of these from 1949 and 1950 publications.

Teachers of forest management courses should be especially pleased with this new text. It quickly should become the most widely used book in its field.

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The Rural Economy of New England, A Regional Study.

By John D. Black. 796 pp. Illus. Harvard University Press, Cambridge, Mass. 1950. $7.50.

Aroostook potatoes are as legendary nowadays as Boston baked beans. This book will bring surprises to the reader, though, if he has had the impression that practically all the farms in New England, outside of Aroostook County, were abandoned 75 or more years ago.

He may be surprised, for example, to learn that New England has today 50 percent more agriculture in proportion to its size than the average for the United States. Its agriculture is more intensive than that of the midwest, and its farm products sell at higher prices. Four New England counties are included in the 100 leading counties in the country, ranked in order of gross value of farm products in 1945. Five more New England counties come within the next 100. New England contains only 2.1 percent of the land area of the country but it contributed 3.0 percent of the value of farm products in 1940. More than 1,100 individual New England farms had gross incomes of at least $20,000 in 1929—a greater number than in Illinois and Minnesota combined.

The three southern New England states are highly industrialized and have a population density of 472 per square mile compared with 34 for the nation and 256 for the Middle Atlantic states. There were nevertheless more than 60,000 operating farms in Massachusetts, Rhode Island, and Connecticut in 1945. In 1940, farms occupied more than 40 percent of the land area of these states. In New England as a whole farms occupied 36 percent of the land area in 1945. Most of the remaining 64 percent is occupied by woodlands not connected with farms.

New England gets all its breadstuffs, nearly all its beef, pork, butter, and cheese, and the bulk of its orchard fruits and processed fruits and vegetables from outside areas. New England argiculture is thus occupied largely with the production of bulky and perishable foods for consumption within the region. Fluid milk, poultry and eggs, and fresh vegetables loom large in New England's agricultural economy. Production for export to other regions comprises only a tiny fraction of the total. New England's agricultural products had a value of $250 million in 1944.

The author says that this book reports on a case study in regional analysis. He hopes that it will help in the making of other regional studies but points out that it is not the usual kind of regional study because it deals only with the rural economy, i.e., the rural land-use economy. By thus limiting the scope of the study it has been possible to answer important questions as to why things are as they are, to indicate trends, and even project the future and sug-

gest how to meet it. It reverses the usual tendency of planning projects to look from the city to the country. It is easy to believe that technicians and practitioners in all branches of agriculture will appreciate this orientation and benefit from the author's originality in accomplishing it so effectively.

This review is for presentation in a technical forestry journal. The assumption is therefore that it will be seen largely by readers more practicularly interested in what the author has to say about the farm woodlots. The author is fortunately keenly aware of the importance of the woodlot in the farm economy and of its potentially greater importance through the application of improved forest management. He points out that New England has 24 million acres of timberland not in farms and 7 million acres of woodland in farms, adding up to three quarters of the total land area. His chapter on woodlands therefore deals with a larger subject, so far as area is concerned, than all the eleven previous chapters combined.

The author also gives warning that so far as mere know-how is concerned, New England's forests could easily be managed in a way that would yield a larger output of timber products than would represent the most productive use of the region's total resources. He does not think this is going to happen but believes that the foresters, if they could have their unrestrained way, would make plans that would do so if they were ever executed. After this tribute to the zeal of foresters in general he discusses specific phases of the economics of forest management in New England with, of course, emphasis on its application to the farm woodlands using four existing enterprises as samples for analysis. The chapter concludes with a discussion of ways and means of achieving more widespread application of better forest management in New England farm woodlands, needed improvements in methods of marketing the forest products, and the role of government in forestry. For government he recommends eight courses of action among which are public operation where private operation will not serve the public interest, marketing aids, credit facilities, research, and education of the owners in woodland management. He does not call for public regulation of cutting on private forest properties.

Copious documentation throughout the volume makes it obvious that the author has worked untiringly to take advantage of all possible sources of significant information. The 123 statistical tables and 155 charts alone would, if piled together, make an impressive monument to the author's industry and devotion to his task. The general style is, moreover, a welcome relief from the ponderous, hard-going style that unfortunately so often characterizes texts of this general nature. The deliberate intent of the author to make himself readily understood is clearly apparent. Readers will find that reading the book is not a chore but a really agreeable experience.

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Federal Reserve Bank of Boston.

The Manufacture of Chemigroundwood Pulps from Hardwoods.

By C. Earl Libby and Frederic W. O'Neil. 42 pp. Illus. Tech. Publ. No. 72 of the New York State College of Forestry. Syracuse. 1950. $1.

Originally the volume of softwoods in the northeastern territory exceeded that of the hardwoods. At present, however, only one-third of the growing stock is softwoods, whereas two-thirds is hardwoods. Four-fifths of the hardwood volume is beech, birch, and maple, species with which the manufacturer of mechanical pulp has had little success in converting into usable fiber. This vast resource of dense hardwoods in a region where a large segment of the industry is engaged in the manfacture of groundwood papers provides a strong incentive in the search for a successful process for the subsequent utilization of these species. The so-called chemigroundwood process was developed at the College of Forestry of the State University of New York in cooperation with the Empire State Paper Research Associates, Inc. group of pulp and paper mills.

The chemigroundwood process converts hardwoods into good mechanical pulps which may be substituted for spruce mechanical pulps. The pretreatment of wood has been the subject of experimentation since the introduction of the groundwood process. Most of this earlier work was done on spruce or other softwoods, and where hardwoods were tried, the results seem to have been discouraging.

The grinding of aspen wood to produce a fairly satisfactory grade of mechanical pulp has been practiced by certain pulp manufacturers for many years. While the fibers in this wood are much shorter than those of spruce, the density is very similar and this factor apparently has more influence than fiber length in determining pulp quality.

Exploratory research with several types of pretreating liquors indicated that in comparison with alkaline and acid liquors neutral sulfite raised the pulp strength the most, lowered brightness values slightly, and the liquor was easily prepared, safe to handle, non-corrosive, and could be reused indefinitely without impairing strength or brightness. The cost was reasonable.

Fundamental studies on the penetration of neutral sulfite liquor into yellow birch wood showed it is possible to penetrate wood blocks completely with salt bearing liquors. Two-foot and 4-foot blocks were used but liquor strength had to be increased with the longer blocks to secure equally good impregnation. A liquor strength of 1 pound per gallon is used on 2-foot wood or 1½ pounds per gallon on 4-foot wood. With only 10 percent chemical consumption reuse of liquor leads to chemical savings of 80 to 85 percent. The ratio of sodium sulfite to sodium bicarbonate in the liquor does not appear to be critical, but best strength in the pulps resulted when 6 to 1 was used.

It was determined that by subjecting the blocks to vacuum (26 inches Hg) for 30 minutes and sub-

sequently to a total pressure of 200 p.s.i. that better pretreatment resulted. A pretreatment temperature of 150°C. and a time of 6 hours gave best average results.

Pretreatment is followed by defibering in a conventional wood pulp grinder. Power consumption is reduced by half, with twice the production rate of ordinary groundwood. The vacuum-pressure treatment cuts power requirements, increases production rate and pulp strength and usefulness. Pulps are three to four times as strong as ordinary spruce groundwood.

The type of pulp stone used was of relative unimportance compared with quality of wood and variables in the pretreatment and pulping phases of the process. The stone face was best when prepared with No. 9 x 1½ spiral burr and dull compared to that surface used on new spruce. A stone speed of 400 r.p.m. (3300 feet per minute) was used. Optimum grinder pit temperature for best strength was 130°F. The grinder pit consistency averaged 5 percent and optimum grinding pressure was 40 p.s.i.

The pretreatment increased the course and intermediate size fractions in the pulp considerably. In appearance the pulp resembles hardwood unbleached chemical rather than normal groundwood.

If the chemically impregnated logs were stored for at least 16 hours they were found to grind faster and easier. Such a delay between treating tank and grinder should fit nicely into commercial production.

Bleaching studies showed that notwithstanding the slightly darker color of the treated pulps, all respond readily to peroxide bleaching. Very promising results have also been obtained so far with calcium hypochlorite.

Existing mill equipment is suitable for the manufacture of chemigroundwood. New equipment must be installed for making the pulping liquors and for the chemical pretreatments but since neutral sulfite liquors are relatively non-corrosive, unlined iron and steel tanks may be used.

In addition to the greatly superior quality of chemigroundwood pulp and the very obvious advantage of utilizing wood species which are cheaper and more readily available than the conifers, this process has several additional factors distinctly in its favor. Aspen and birch pulp may be manufactured with an expenditure of approximately 60 percent of the power required for the manufacture of spruce pulp. Beech and maple woods are pulped with even greater ease.

The production rate for aspen pulp is approximately 20 percent and for birch pulp it is over 30 percent greater than it is for spruce pulp. Beech and maple woods are pulped at a considerably higher rate than is aspen or birch.

The greatest economic advantage is the fact that the density of the most available hardwoods enables them to produce approximately 25 percent more pulp per cord of wood than can be obtained from spruce. This single advantage is sufficiently great to more than absorb the additional costs of steam, chemicals, and labor which are required for the manufacture of chemigroundwood pulps.

This complete, detailed report of the first successful commercial method of obtaining quality mechanical pulps from hardwoods that are common and plentiful should encourage the industry and the silviculturists alike.

The report has 39 graphs, 8 photomicrographs, 18 tamles, and 39 figures. It is well printed on good paper.

IRVING H. ISENBERG,
Institute of Paper Chemistry,
Appleton, Wis.

Timberland Adventure.

By Lynn Bronson. 221 pp. Illus. J. B. Lippincott Co., Philadelphia. 1950. $2.50.

Oregon is pictured at the beginning of the twentieth century by the struggles of Nat Purvis and Billy Cain to overcome the hardships that confront them.

Nat lives with his grandmother in Portland. An ambitious worker, he is handicapped by a crippled leg. He finds a good friend in Billy Cain, although the friendship results in the loss of his job at the cordage factory. Billy, a young English sailor, deserted his ship in Portland, and he plans to make his fortune in America.

Grandma Purvis, along with other elderly people, is asked by an agent for a large lumber company to file a forest claim on government land open to homesteaders. The expense of filing the claim will be advanced by the agent and a bonus will be given to anyone who agrees to file. The law provides that the person is to live on the claim three years, but Civil War veterans and their widows are given a lesser period. No one is really expected by the lumber company to live on the claim, but certain improvements, such as building a cabin, are to be made by men hired by the company. The company of course is later to take over the land. Mrs. Purvis is reluctant to accept the offer, for she fears it may be dishonest, but they need the money.

While she is away their house in Portland burns down, and Nat and Billy live with Washington Adams, a poor young lawyer, who is a close friend. When Mrs. Purvis returns they have no home, so they decide to live on the claim. Arvo Markkanan, a friendly Finn, is helpful in getting them settled. He too plans to live on his claim, and figures that the timber will be worth twenty thousand dollars in a few years. Nat and Billy spend their time in trapping and natting salmon, during the seasons, to earn money to repay the funds advanced by the agent.

Eventually the government investigates the proceedings of the agent, and a trial is to be held to decide whether the transactions are against the law. Washington Adams has also taken a claim legally, and he agrees to defend some of the elderly people involved. Mrs. Purvis is called as a witness. She is found to have legal right to her claim, and they all look to prosperous days ahead.

This story is not only interesting historically, but is also a good adventure yarn for boys.

ALBERT CLEPPER.

Current Literature

Compiled by MARTHA MEELIG, *Librarian, The New York State College of Forestry*

Range Management Section Compiled by FRANCES FLICK, *Library, U. S. Department of Agriculture*

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Society Affairs

Compiled by ROBERT D. HOSTETTER, *Assistant Executive Secretary*

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Reports of Officers, Committees, Divisions

Golden Anniversary Meeting, Society of American Foresters

Mayflower Hotel, Washington, D. C., December 13-16, 1950

Report of the President

Charles F. Evans

Established custom limits the President's report to a brief review of Society activities and accomplishments of the past year with recommendations or suggestions on other matters affecting the interests of the Society. It is difficult to avoid the temptation on this occasion to talk about our 50-year record but I shall refrain from doing so. It has been ably covered elsewhere on the program and in the splendid article by Ralph S. Hosmer in the November JOURNAL OF FORESTRY

The past year has been another one of steady growth in the strength of this organization. The membership has increased from 6,628 on December 1, 1949 to 7,038 on November 30, 1950. But many qualified men who could become members with benefit to themselves as well as the Society still remain outside. I have never known a man who took an active part in the Society who did not get more out of it than he put into it. That has surely been true in my own case. The Society is the organization that represents and serves the profession and it will grow in strength and capacity to serve as the membership increases. Some of the Sections have done outstanding work through active membership committees in bringing qualified men into the Society. Membership work is time consuming and we owe much to the men who have given so freely of their time to this activity.

One of the developments of recent years that has made membership attractive and that is evidence of the growing maturity of the profession is the excellent quality of Section and Chapter meetings. More and more they are becoming a forum for the discussion of forestry policies and methods. The members are getting something they can use when they return to their daily work. Employers of all classes are sending their men to national and Section meetings.

The general basis on which membership qualifications rest was established about 15 years ago. Since then the requirements have been changed in respect to details by amendment of the Constitution and Bylaws mostly in the interest of clarification. The fundamental principles however have stood the test of time and remain unchanged. During the past few years the Council has been disturbed by inconsistencies in the admission of men to Junior membership. The Sections have varied widely in the way they weighed the qualifications of men who are not graduate foresters. In order to clear up the confusion, the Council at its June 1950 meeting decided to place the matter before the members in a referendum which, if approved, would provide that only graduates of accredited schools would be admitted directly to the Junior grade. The entrance grade for others would be the Affiliate grade. The proposed amendments were all approved.

The JOURNAL OF FORESTRY is being maintained at its high standard in the face of mounting costs and other difficulties. In the five years I have served on the Council there has been complete agreement in the Council on the policy of maintaining and improving the JOURNAL even when it meant the sacrifice of other very important services. I do not expect this policy will ever be changed. Last year in his report, President Clyde Martin referred to the difficulty of finding and keeping a qualified JOURNAL editor who, as in the past, would perform the time consuming duties without pay. As Mr. Martin anticipated, it proved impossible, so the Council adopted the expediency of employing a part-time editor. We could not afford even that but it had to be done. It is wholly impossible for the Executive Secretary, willing and able as he is, to serve as editor of the JOURNAL and other publications of the Society in addition to his other work. The part-time arrangement is working well but we cannot expect to continue it indefinitely. As soon as funds are available a full-time editor should be employed.

It gives me much satisfaction to report some very significant Society publications of the past year. A revised edition of the popular *Forestry Terminology* was printed and put on sale at $3 a copy. Past experience indicates that the cost to the Society will be returned by receipts from sale to members and others. You have seen the history, *Fifty Years of Forestry in the U.S.A.*, which is on sale at this meeting. Much credit is due Robert K. Winters and his committee for this publication. A *Directory of Members* was prepared by our staff in Washington and a copy mailed to every member last summer. A large amount of time and painstaking work was required for this job. Finances permitting, it should be revised at intervals of not more than five years. In preparation is a publication which should prove to be one of the most valuable to members of any ever issued by the Society. I refer to the forthcoming *Foresters' Field Manual*, being prepared under the direction of a committe consisting of E. W. Littlefield, chairman, William Maughan, James G. Osborne, and R. D. Forbes, editor. Assisting this committee are 19 subject matter committees with 117 members.

What may be the most important and far reaching accomplishment of the past year is the task, now practically completed, of re-examining and reaccrediting the forestry schools of the United States. The Accrediting Committee under Chairman Myron Krueger has given a great amount of time to this work. At the request of the Committee, members of the Council served on visiting committees in the examination of several schools and thereby gained experience that will be valuable in considering matters concerned with forestry education. The Accrediting Committee has earned the complete confidence of everyone concerned.

During the past few years the subject of licensing of practicing foresters has engaged the attention of the Society, more particularly in the Sections having large areas of commercial forests. Active discussion and debate have followed efforts to frame suitable legislation to attain the desired objectives. It is universally recognized, I suppose, that licensing, if done, will have to be done under state legislation. Beyond this point a wide difference of opinion exists as to who should be required to obtain a license, qualifications of licensees,

and other important details. Many foresters believe licensing to be a vitally important step in establishing and maintaining professional standards. They remind us that uninformed clients and public have no way of knowing whether the practitioner is qualified except by trial which may prove costly and may discredit the profession. Here is a case where the interests of the public and the profession are identical. Our leadership is needed and it should be directed to a solution of the problem.

With much regret I have to report that the Society closed the fiscal year ending November 30, 1950 with a deficit of $1,458. Of course I can say, "if we had not been forced to employ a paid editor, if the reaccrediting of forestry schools had not been undertaken this year, if we had not gotten out a new directory this year, etc., we would have closed the year with a surplus." The cost of many things has been higher than were estimated when the Council approved the 1950 budget 14 months ago. Your officers have tried faithfully to avoid a deficit. Travel has been curtailed and rigid economy has been practiced. Nevertheless we have the deficit and we do not like it. We have reason to believe that 1951 will not bring so many unusual projects that are expensive.

One of our important needs that has been recognized by the Council for several years is more space and equipment for the office in Washington. Those of you who have visited the office have noted the crowded condition under which the staff is working. It seems likely that within the next six months additional space can be obtained in the Mills Building.

The Society has been evolving over the years the policies that must guide it and its representatives. These policies must rest on the solid ground of membership support. Your officers cannot represent you unless they are guided by your opinion. Recent Councils have tried to develop the means of getting this guidance. The annual meeting of the Council with Section delegates is one of the means that has been followed. It is helpful but it can serve the fullest purpose only if it is preceded by Section deliberation and discussion. Referenda are being taken on important issues. They are expensive and in some cases they delay action when prompt action is important. The validity of a referendum as a measure of informed judgment depends on that free exchange of views to which the founders of the Society attached so much importance. That means discussion and debate in the Sections and the Chapters.

In its mid-year meeting last June the Council adopted a policy prohibiting its officers and employees from lobbying for or against legislation. I believe the policy to be wise and am confident that it meets the approval of most of our members. So far no one has objected to it although some questions of interpretation have been raised. Issues may arise in which the interests of the entire profession are involved and your officers may be requested to state the position of the Society. It is my opinion that they should respond if in their judgment the issue is one concerning which they can properly act in the name of the Society. The men you elect will not do this unless they feel certain that they are representing the informed judgment of the majority.

If I seem to dwell too long on the subject of informed opinion you will be patient with me, I am sure. The emphasis is due to a firm conviction that only with the backing of informed opinion can sound and enduring policies be formed.

As we take off on the second 50 years we can face the uncertain future with enthusiasm and confidence. Our profession will be ready to meet the stiff tests that lie ahead. The problems will be many and complex, but if we keep going in the direction we now are headed our successors, a half century hence, may point with pride to our accomplishments.

Report of the Executive Secretary

Henry Clepper

The decade now drawing to a close has been one of the most fateful in the history of the Society and the forestry profession.

Consider the matter of our growth. As of December 1, 1940 the membership of the Society totaled 4,708. As of December 1, 1950 the number of members was 7,038.

In 1940 our income totaled $37,500. In 1950 income was $92,400.

In 1940 the budget for publishing the JOURNAL OF FORESTRY and S.A.F. Affairs, exclusive of salaries, was $22,500. In 1950 the comparable budget for the JOURNAL OF FORESTRY was $27,500.

In 1940, with a membership of 4,708, the Society had a staff of 7 employees in the executive office. In 1950, with a membership of 7,038, the staff totals 10 plus a part-time editor.

In 1940, the Society had one subject Division, 19 Sections, and a couple of unofficial subsections. In 1950, the Society has 10 subject Divisions, 21 Sections, and 60 Chapters.

At the Society's 40th anniversary meeting in the Mayflower Hotel, December 19-21, 1940, there was a registered attendance of 550 members and guests. At this 50th anniversary meeting in the same hotel, the total registered attendance of members, their ladies, and guests exceeds 1,250.

In 1940, 28 colleges and universities in the United States offered professional instruction in forestry; 20 of these were recognized by the Council of the Society as accredited schools. As of 1950, 34 institutions of higher learning offer professional instruction; and 22 of these are accredited for forestry.

In 1940, the number of undergraduate degrees granted by our schools of forestry was 1,068, and the number of master's degrees, 105. In 1950, the number of undergraduate degrees was 2,321, and of master's degrees, 275.

There is one final evidence of professional development during the past decade which is of interest. In 1940 the number of foresters privately employed in the United States was approximately 1,000. As of 1950 there are about 4,400 foresters employed by industry, by private woodland owners, and by private associations. But more about employment later.

I could go on citing interesting contrasts and parallels between 1940 and 1950. But perhaps I have said enough to show that the profession of forestry and our Society, which represents it, are continuing to grow with the needs of the nation for the many services which professional foresters render.

Membership

The membership classified by Sections, as of December 1, 1950, appeared in the January 1951 issue of the JOURNAL.

It is interesting to note that the top ten Sections with the largest membership are:

1. Columbia River.
2. Southeastern.
3. Northern California.
4. Appalachian.
5. Allegheny.
6. New England.
7. Gulf States.
8. Central States.
9. New York.
10. Puget Sound.

During the fiscal year 1950, 1,133 individuals were listed in the JOURNAL as candidates for election to Junior Membership. That figure represents an increase of 50 percent over the previous year's record.

The principal reason for this marked increase is the smooth cooperation between the Section Membership Chairmen and the Section representatives at the accredited forestry schools in informing forestry students and other eligible nonmembers of the objectives, policies, and programs of the Society. Effective Section and Chapter operation has maintained the interest of all foresters. A heightened awareness of the benefits of the Society has made this the year during which total membership reached the goal of 7,000, an increase since 1900 of 1,000 percent.

Robert D. Hostetter, our assistant executive secretary, has worked diligently on membership matters during the past year, and is ready and willing at all times to assist with membership problems.

As you know, the new grade of Student Member has been approved by amendment to the Constitution. Under specified conditions a junior, senior, or graduate student, regularly enrolled in an approved forestry curriculum at a college or university accredited by the Council of the Society, is eligible for the Student Member grade. The dues are $3 per year, and there is no $5 admission fee on advancement to the Junior Member grade.

Another important change in the membership rules provides for the admission to the Affiliate grade, immediately upon graduation, of graduates of nonaccredited schools of forestry. This provision is applicable to graduates of the four Canadian schools. In short, graduates of nonaccredited schools need not wait a year, or two, or three until they have acquired the necessary experience to admit them to Junior Membership. They may now enter the Affiliate grade immediately, and after two years in that grade advance to Junior Member.

Finances

Table 1 shows our financial operations during the past two fiscal years, and the budget for next year.

During 1949 we operated in the black with a profit at the end of the fiscal year of $1,741.

During 1950 we operated in the red with a deficit at the end of the fiscal year of $1,458. The main cause of the deficit was the part-time employment of a paid editor, an appointment which the Council made only after careful consideration and after realization that the job of editor now requires more time than the Society can expect to be contributed gratuitously.

Our proposed budget for the fiscal year 1951, shown in Table 2, is a balanced budget, and no deficit is anticipated.

Another abnormal item of expense during 1950 was the *Directory of Members*. Authorized by the Council in 1949 by widespread demand of the membership, the *Directory* was published as a supplement to the August 1950 issue of the JOURNAL. It cost $3,151 of which the Sections contributed $445. Considering the Society's financial condition and the high cost of printing, I question whether we can justify the expense of a directory every two years, as a previous Council had recommended.

The Society has never had adequate finances to carry on the many activities which the membership has suggested and which the Council would have been willing to approve had funds been available. Indeed, it is remarkable that the Society has been able to accomplish as much as it has, considering our slender financial resources. One principal reason why the Society's dollar has stretched as far as it has, is because of the careful management and economies of Miss L. A. Warren, our business manager.

TABLE 1.—A COMPARISON OF INCOME AND EXPENSE FOR 1949 AND 1950, AND THE BUDGET FOR 1951

EXPENSE

	Actual 1949	Actual 1950	Budget 1951
Journal of Forestry	$26,373.39	$27,507.54	$27,300.00
Editor's expense	99.74	111.20	250.00
Advertising travel	—	—	—
Salaries, Exec. Sec. and Asst.	12,517.04	12,600.00	13,800.00
Salary, Editor	—	4,950.00	4,000.00
Salaries, office staff	20,622.31	22,290.11	24,500.00
Advertising retainer and commission	1,158.64	4,887.49	5,000.00
Advertising promotion and expense	712.59	1,274.63	1,300.00
Travel, officers	2,841.51	2,301.04	3,000.00
Postage	1,225.22	1,518.46	1,600.00
Telephone and telegram	398.41	413.40	520.00
Rent	1,582.50	2,220.74	3,245.00
Multigraph and mimeograph	441.42	310.26	500.00
Miscellaneous printing	690.08	1,194.75	1,500.00
Office supplies	669.93	1,143.15	1,000.00
General expense	863.40	838.15	850.00
Depreciation	329.50	397.72	500.00
Pension plan	539.46	1,005.65	773.00
Natural Resources Council	200.00	200.00	200.00
Committee expense	298.02	44.38	100.00
Grading forestry schools	341.35	2,262.61	300.00
Annual meeting	1,436.18	667.48	—
Contributions	50.00	—	—
Council travel expense	952.36	1,128.09	1,250.00
Referenda and election of officers	864.84	870.90	500.00
Division expense	38.80	13.40	50.00
American Inst. of Biological Sci.	100.00	50.00	50.00
Constitution and Bylaws	—	537.00	—
Section Manual	—	440.74	—
Membership Directory	—	2,706.50	—
Social security	—	—	600.00
Annual meeting Proceedings	3,996.12	—	—
Miscellaneous	86.75	14.40	25.00
	$79,429.56	$93,899.79	$92,713.00

INCOME

Dues	$62,535.58	$67,054.34	$70,500.00
Fees	3,341.50	4,980.25	5,500.00
Subscriptions and sale of Journals	7,347.08	7,722.66	7,700.00
Advertising	5,091.36	10,827.56	10,000.00
Interest and dividends	552.34	526.83	400.00
Books	255.72	66.50	—
Reprints	114.91	42.86	—
Miscellaneous income	1,931.61	1,220.22	750.00
Forestry Terminology	—	—	1,500.00
	$81,170.10	$92,441.22	$96,350.00

Estimated net earnings ..... $ 3,637.00

Employment of Foresters

The trend toward the employment by forest industries of an increasing percentage of foresters is continuing. During the 1930's only about ten percent of all Society members were employed by forest industries. Now, about one-fourth of all members are so employed.

Basing his estimate on the employment survey of last January and on the employment of the 1950 forestry graduates, Mr. Hostetter has estimated that 4,400 professionally trained foresters are currently employed by forest industries in the United States. About 3,550 are federally employed. State forest services and extension services employ about 2,500 foresters. Approximately 600 are employed on the staffs of forestry schools. Consulting foresters and those who are otherwise self-employed account for about 450. Associations employ about 200 foresters, and 100 are employed by local units of government. Approximately 450 are taking graduate work, have retired from forestry work, are Americans employed by international or foreign governments, or for some other reason cannot be classified in the above categories.

Thus, a total of 12,250 professional foresters are directly engaged in the forestry profession. About 5,450 of the 17,700 persons trained in forestry since 1900 are thought to be employed in fields other than forestry or are deceased.

Election of Council

The regular biennial election of officers and Council members will be held in the fall of 1951. Our president, Charles F. Evans, has announced that he will not be a candidate for re-election. It is not too early for the voting members to begin thinking about candidates for the offices of president and Councilmen.

All that is needed to put a candidate in nomination for any of these offices is a petition signed by ten voting members plus the candidate's agreement in writing to serve if elected.

Candidates nominated for the office of president are assumed to be nominated for the vice presidency also. Thus the candidate receiving the most votes is declared elected president, and the runner-up is declared elected vice president.

For the election of 1949, only two candidates were nominated for the office of president. This meant that one had to be president and the other vice president. Such a restricted choice is not democratic, and I hope that there will be at least three candidates nominated in 1951 for the presidency, preferably more.

There will be nine positions on the Council to be filled. All Council members serve for concurrent two-year periods. Actually, a brand new Council does not take office every biennium because there are always several members who are reelected. Of the present Council of 11, the president, vice president, and two other members were re-elected; in addition one member, F. H. Brundage, served previously in 1938-1939.

If any members desire additional information about nominating procedure, either during this meeting or later, I shall be glad to be of assistance. Keep in mind that nominations for offices on the Council may be submitted now and until next October.

Report of the Editor

Albert G. Hall

The first paid editor of the Society approaches the matter of an annual report with some temerity. Volunteer editors in the past could look with pride upon their accomplishments for the Society. A paid editor, on the other hand, must look most critically at those things he failed to accomplish, knowing that his employers fully expected and were fully entitled to anything which may have occurred on the credit side of the ledger.

Properly to set the stage for a report, it is necessary for the editor to recognize that the basic policies of the JOURNAL OF FORESTRY had been set for him by previous editors and by the Council, that a new format had been designed for the JOURNAL itself, and that within the Washington, D. C. staff of the Society the business aspects and mechanical procedures for producing the JOURNAL were well developed and were functioning smoothly. Further, an excellent Editorial Board was prepared to lend every assistance necessary in reviewing and in soliciting manuscripts in the various subject-matter fields which make up the profession.

Plans had been developed and work was well under way for two publications: *Forestry Terminology* was in galley-proof form, having been prepared by the Committee on Terminology; the historical work, *Fifty Years of Forestry in the U.S.A.*, had a staff of foresters diligently preparing its 19 chapters; and R. K. Winters, the chairman of the Committee on History, was busy reviewing and correlating their efforts.

With this splendid preparation for the editor, the results of the past year as measured in volume of output could not have been wholly unexpected. Members of the Society received probably more wordage in the JOURNAL than was printed during any comparable period. The JOURNAL's new format lent itself well to more articles per issue and to the use of illustrative material in the form of photographs, charts, tables, and diagrams. We have tried to use it effectively.

While the editor can properly share with the Society staff and with the other members of the Editorial Board whatever compliments may be directed at the JOURNAL and the two major publications of 1950, he unfortunately has no one but himself to blame for the errors and omissions which spotted the JOURNAL throughout the year.

The content of the JOURNAL is a reflection of two things; (1) an attempt by the Editorial Board to seek a balance among the various aspects of forestry; and (2) the type and quality of manuscripts received from authors. In all, not counting the Golden Anniversary issue which was devoted largely to Society Affairs, 120 full-length leading or feature articles were published. Of these, 33 were on silvicultural subjects, 13 dealt with forest insects and diseases, 13 were in the field of forest and wood utilization, 13 in forest economics and policy, 12 dealt with forest influences and soils, 9 with forest management and engineering, 5 with forest fire, 5 with wildlife management, and 3 each with the fields of forest recreation, mensuration, world forestry, and range management; and there were 5 miscellaneous articles having to do with Society activities or projects.

Except for one or two guest editorials, JOURNAL readers have received no editorial comment. This is an aspect of the JOURNAL which the present editor, because of his employment outside the Society as a forestry relations counsel and consulting forester, prefers to have handled by others.

In addition, the JOURNAL carried during the 12 months of 1950, 103 pages of Society Affairs prepared by Assistant Executive Secretary Robert D. Hostetter, 94 pages of Forestry News, 63 Reviews, 61 Shorter Articles and Notes, 21 Points of View and 12 pages of Current Literature prepared by Miss Martha Meelig of the New

York State College of Forestry and Miss Frances Flick of the U.S. Department of Agriculture Library. Six members of the Society were presented in the ever-popular feature department, "We Present."

In the Golden Anniversary issue, November 1950, a somewhat radical departure was made from the usual JOURNAL format in order to accommodate the historical summary, and other features related to the fiftieth anniversary meeting, and the large volume of advertising. As a departure for one issue, the format and content was apparently well-received by the Society members.

Throughout the year, we maintained an 80-page JOURNAL OF FORESTRY, except during the three summer months when, in order to bring expenses more into line with the budget, we published three consecutive issues of 64 pages each. Fortunately, we have had a steady flow of excellent manuscripts which makes possible the utilization of 80 pages. The increase in the volume of advertising has not interfered with editorial content. To the contrary, advertising within the fields of forestry is considered an important part of the JOURNAL, since it is in effect a service to readers as well as to advertisers.

The use of a cover photograph on the JOURNAL has been received with somewhat mixed reactions by the members. A pictorial cover does brighten up the appearance of the JOURNAL and according to the publishers of commercial magazines it causes readers to open the "book." That such a lure is needed in the JOURNAL OF FORESTRY is something that few foresters are willing to admit. However, readers who formerly stacked their unwrapped copies of the JOURNAL for later attention now report that they at least open their copies. While it is not to be expected that every article in every issue of the JOURNAL will be read with equal interest by every member of the Society, the cover picture serves a useful purpose if it helps cause members to find out what is inside.

Looking at the JOURNAL critically, as a reader, the editor would hope to find in each issue at least *one* article which would be of interest and value and worthy of his immediate attention, and from two or three other articles or items of which he would take note for possible future reading or use. If this aim can be realized, the JOURNAL, editorially, and as a professional publication, will have attained success.

Report of Council Meeting

By Henry Clepper

A meeting of the Council of the Society of American Foresters was held December 13, 1950, in the Mayflower Hotel, Washington, D. C.

Ten members were present: President Charles F. Evans, Vice President C. S. Herr, D. B. Demeritt, S. G. Fontanna, F. H. Kaufert, C. Otto Lindh, G. D. Marckworth, R. E. McArdle, DeWitt Nelson, and Earl Porter; together with Henry Clepper, executive secretary. F. H. Brundage was unavoidably absent because of recent illness.

Nominating Committee for 1951

Article VIII, Section 1 of the Constitution provides that a Nominating Committee shall be appointed by the President, with the approval of the Council, not later than April 1 of an election year.

Experience suggests, however, that this committee should be appointed promptly in order that announcements about the election can appear as early as the March issue of the JOURNAL. These announcements should then appear monthly until the nominations close in October.

The main duty of the Nominating Committee is (1) to provide that there shall be at least two candidates presented for the office of president, and at least nine candidates for the Council; and (2) to set the date of the election, which bylaw 40 provides shall not be before December 1 or later than December 15.

Since the 1951 meeting in Biloxi will fall during the period December 12-15, the election should be held at the earliest legal date in order that newly elected Councilmen may plan to attend the meeting. Hence, the Council recommends to the Nominating Committee that the date for counting the ballots be Saturday, December 1.

Actually, the Nominating Committee has made no nominations of its own for at least ten years because the minimum number required by the Constitution has always been forthcoming by petition. Nominations by petition are best because then we avoid candidates handpicked by a small committee.

The Council has asked that the following committee of Members serve for this election.

Chairman, Alf Z. Nelson, R.F.D., New Ipswich, N. H.

William C. Postle, Box 351, Winnfield, La.

Everett L. Hamilton, U.S. Forest Service, Glendora, Calif.

Alex J. Yorman, Box 83, Solon Springs, Wis.

Vincent Bousquet, Box 133, Centralia, Wash.

Committee for 1951 Meeting

Bylaw 69 provides that a Meeting Committee shall be appointed by the President to provide programs for the general sessions at the annual meeting, and to supervise other aspects of the arrangements including the Society's annual dinner.

For the 1951 meeting to be held in Biloxi, Miss., December 12-15, the Council has appointed Charles A. Connaughton of New Orleans as general chairman.

The Meeting Committee is as follows:

Chairman, Charles A. Connaughton, Southern Forest Experiment Station, Federal Office Building, New Orleans 12, La.

William C. Hammerle, Southern Pine Association, Canal Building, New Orleans 4, La.

J. A. Gibbs, Soil Conservation Service, Spartanburg, S. C.

Robert T. Clapp, Department of Forestry, Mississippi State College, State College, Miss.

J. M. Stauffer, Alabama Division of Forestry, 5 North Bainbridge Street, Montgomery 4, Ala.

In addition the Council has authorized a Committee on Local Arrangements, and has asked the following members to serve on it.

Chairman, T. E. Maki, Southern Forest Experiment Station, Box 122, Gulfport, Miss.

A. K. Dexter, International Paper Company, Canton, Miss.

John W. Squires, Box 1849, Jackson, Miss.

John G. Guthrie, Forestry Agent, Illinois Central Railroad, Hattiesburg, Miss.

Randle J. Dedeaux, P. O. Box 52, Perkinson, Miss.

J. Roland Weston, 106 Carroll Avenue, Bay St. Louis, Miss.

Other members will be added as needed.

Headquarters for the meeting will be the Buena Vista Hotel.

S.A.F. Editor

Albert G. Hall, who was appointed paid editor for Society publications effective January 2, 1950, has recommended to President Evans that his basis of employment be reduced from 75 percent of his time to 50 percent. During 1950, in addition to the JOURNAL OF FORESTRY, Mr. Hall also

had editorial responsibilities in connection with the Society's two books *Forestry Terminology* and *Fifty Years of Forestry in the U.S.A.*

During 1951 no books or similar publications, in addition to the JOURNAL, are contemplated. Mr. Hall believes that he can handle the JOURNAL editorial work by devoting half his time to the Society.

Accordingly, on motion by Dr. McArdle, seconded by Mr. Nelson, the Council approved unanimously Mr. Hall's employment on a half-time basis.

It is understood, however, that should more than 50 percent of Mr. Hall's services in any month be needed, the executive secretary will have authority to request such services up to 75 percent of Mr. Hall's time.

Policies and Objectives

A report of a Society Committee on Policies and Objectives was submitted by F. H. Brundage, chairman. His report on the same subject to the entire Society membership appears elsewhere in this issue.

On motion by Dr. McArdle, seconded by Dr. Kaufert, the Council directed that Mr. Brundage's report be reproduced and sent to the Council together with copies of all S.A.F. policy statements; action to be taken at the mid-year meeting.

Action on Referendum on Hoover Commission Report

The executive secretary was directed to notify the following agencies of the results of the referendum held December 1, 1950 on recommendations of the (Hoover) Commission on Organization of the Executive Branch of the Government: the New England Section, the Budget Bureau, and the Executive Office of the President, with possible later action if an executive order reorganizing forest and range services is presented to Congress.

The result of this referendum was reported in the January issue of the JOURNAL. A majority of the Society members who voted preferred the recommendation to establish an Agricultural Resources Conservation Service in the Department of Agriculture to which would be transferred land activities of the Bureau of Land Management of the Department of the Interior.

Budget for 1951

In considering the proposed budget for 1951, the Council authorized certain cost-of-living salary adjustments for the executive office staff. Following this action, on motion by Mr. Nelson, seconded by Mr. Demeritt, the Council approved the budget as shown in Table 1 of the executive secretary's report on page 125 of this issue, with provision for its review at the mid-year Council meeting.

In brief, the budget estimates income of $96,350, expenses of $92,713, with net profit for the year of $3,637.

JOURNAL Advertising

The executive secretary announced that, according to the auditor's report for the fiscal year December 1, 1949-November 30, 1950, gross advertising income during 1950 totalled $10,827, as against $5,091 in 1949. The net income from advertising in 1950 was $4,665, as compared with $4,220 in 1949.

Lloyd Thorpe, the JOURNAL's advertising representative in Seattle, has done a good job of promoting advertising through a campaign to make the JOURNAL better known among advertising agencies, and among manufacturers and sellers of items used by foresters.

The Society continues to plow back a sizeable portion of its gross advertising revenue into Mr. Thorpe's solicitation program. The Council believes this is good business because the JOURNAL is still not a well known magazine outside its technical field, and it has to be "sold" to meet the competition of other similar publications.

In accordance with the foregoing considerations, the Council authorized a continuation during 1951 of the arrangement with Mr. Thorpe.

Annual Meeting in 1952

Dr. R. E. Balch, president of the Canadian Institute of Forestry (formerly the Canadian Society of Forest Engineers), invited the Society of American Foresters to send an official representative to the Institute's 1950 annual meeting for the purpose of discussing with their Executive Committee the possibility of a joint meeting of our two societies in 1952.

Prior to leaving for the meeting, held in Sault Ste. Marie, Ontario, October 26-28, the executive secretary discussed the proposal with President Evans whose opinion was that a joint meeting would be desirable for professional as well as international reasons.

Accordingly, Mr. Clepper met with the Institute's Executive Committee on October 25, and agreed to the following tentative plans, subject, of course, to consideration and approval by the S.A.F. Council.

1. The proposed dates are November 17, 18, 19, and 20, 1952. These dates represent a compromise between the month of October when the Institute usually meets, and the month of December when the Society usually meets.

2. The proposed meeting place is Montreal, Quebec. The suggested headquarters hotel is the Mount Royal. Montreal is extremely convenient and accessible, both for the Canadian and the U. S. Foresters.

3. It is proposed that each society hold its own one-half-day business meeting, as is customary. All other sessions would be attended jointly. It is further proposed that there be two one-half-day general sessions plus the dinner program for the two societies. But instead of holding ten separate Division meetings for Society members, there would be possibly six technical sessions, running concurrently, each devoted to some broad specialization in which both Canadian and U. S. specialists would present papers.

4. Optional post-meeting field trips would be arranged, but none would be scheduled during the meeting itself.

5. The Institute's Executive Committee designated as general chairman for the meeting W. A. E. Pepler of the Canadian Pulp and Paper Association, Montreal. J. L. Van Camp of the Canadian Forestry Association was designated as chairman of the Program Committee. All committees would, of course, be comprised of Canadian and U. S. members.

On motion by Prof. Marckworth, seconded by Mr. Demeritt, the Council voted unanimously to hold the 1952 annual meeting in Montreal, jointly with the Canadian Institute of Forestry.

Our postwar rotation system will shape up as follows.

1946—Rocky Mountain Region. Held in Salt Lake City.

1947—Central Region. Held in Minneapolis.

1948—Northeastern Region. Held in Boston.

1949—West Coast Region. Held in Seattle.

1950—Washington, D. C.

1951—Southern Region. Scheduled for Biloxi, Miss.

1952—Joint Meeting with Canadian Institute of Forestry. Scheduled for Montreal, P. Q.

Subject Divisions

The following report on Society subject Divisions was submitted by S. G. Fontanna. Comments from Division officers and members at large are welcomed by the committee, and should be sent to Mr. Fontanna direct.

To the President and Members of the Council:

At the Council meeting of June 19-21, 1950, a committee consisting of Earl Porter, Otto Lindh, and myself was appointed to study the organization of the Divisions of the Society, particularly with respect to possible consolidations, and to report to the Council at its meeting of December 13, 1950.

This report is being made in writing at this time so that the members of the Council may have it in their hands prior to the Council meeting. It is the result of considerable correspondence between the members of the committee whose original ideas, as you may well appreciate, were as far apart as their geographical locations.

The committee concludes as follows:

Each of the present Divisions of the Society was founded and is now supported by an active group. Each of the Divisions serves a special purpose (well expressed in the original petitions), valuable to the Society. The interest of the educators and public relations people in getting together relative to their own problems is readily understandable, as is that of the private foresters. The creation of the Divisions of Range Management, Forest Recreation, Watershed Management, and Forest-Wildlife Management has brought into the Society special interests, all of which are interwoven with and profoundly affect the practices of forestry. It is the belief of the committee that these groups make valuable contributions to the Society and are highly desirable in rounding out Society membership.

There remain those fields of forestry recognized in the forestry school education programs: silviculture, protection, management, economics, and utilitzation. Three of these fields are covered in the Divisions of Silviculture, Forest Economics, and Forest Products. This leaves the fields of protection and management which the committee believes decidedly merit recognition. The Council has already received a petition for a Division of Forest Measurements and there has been considerable talk relative to a Division of Protection. The committee feels, however, that in the interest of holding down the number of Divisions that the fields of protection and management can well be joined in a single division to be known as Forest Management.

It is the recommendation of the committee, therefore, that (1) the present divisions of the Society be retained without change, and (2) that there be created a new Division of Forest Management, which will include administration, protection, and forest measurements.

The committee appreciates that one of the difficulties presented by the large number of Divisions is the matter of meeting rooms for Division sessions at annual meetings and that the above recommendation of an added Division enhances rather than solves this difficulty. As a possible remedy, the committee suggests these alternates: (1) that except for the Division of Education (which meets ahead of the regular session) and the Divisions of Silviculture and Management, that the Divisions meet for half-day sessions only, thereby reducing the number of meeting rooms required by four, and further allowing the members of the Divisions to attend either Silviculture or Management for the other half day; (2) that the Divisions be grouped together in three half-day sessions, as for instance, Education and Public Relations; Watershed Management, Forest Recreation, Wildlife Management, and Range Management; Silviculture, Forest Economics, Forest Products, Forest Management; or (3) any combination of the above.

This report is being submitted with considerable humility in the face of what Earl Porter describes as "an almost impossible task." Probably it will serve merely as the basis for further debate.

EARL PORTER
OTTO LINDH
STANLEY G. FONTANNA, *Chairman.*

December 4, 1950.

In light of the foregoing report, the Council considered a petition signed by 26 members requesting the formation of a Division of Administrative Management.

On motion by Mr. Demeritt, seconded by Prof. Marckworth, the Council voted unanimously to table the petition for the Division of Administrative Management pending further study of the organization of subject Divisions, and their possible consolidation or grouping.

Action on Accrediting

Prof. Myron Krueger, chairman of the Society's Committee on Accrediting, transmitted personally to the Council the committee's recommendations. From an analysis of the questionnaires submitted to each institution which applied for a rating, and from the report of the visiting committee which personally inspected each institution, the Committee on Accrediting recommended that the following 25 colleges and universities be approved for forestry instruction by the Council.

Alabama Polytechnic Institute.
California, University of.
Colorado A & M College.
Duke University.
Florida, University of.
Georgia, University of.
Idaho, University of.
Iowa State College.
Louisiana State University.
Maine, University of.
Massachusetts, University of.
Michigan State College.
Michigan, University of.
Minnesota, University of.
Missouri, University of.
Montana State University.
New York State College of Forestry.
North Carolina State College.
Oregon State College.
Pennsylvania State College.
Purdue University.
Utah State College.
Washington, University of.
West Virginia State University.
Yale University.

On motion by Mr. Nelson, seconded by Mr. Demeritt, the Council unanimously accepted the report and recommendations of the Committe on Accrediting.

On the further recommendation of Prof. Krueger, the Council directed that the covering letter initially transmitting the Council's action to each institution shall be sent by the executive secretary, and that this letter shall offer to provide the institution concerned with a copy of the complete report showing the institution's numerical rating together with the report of the visiting committee.

On motion by Mr. Nelson, seconded by Mr. Fontanna, the Council approved a special letter proposed by the Committee on Accrediting to Harvard University.

On motion of Mr. Demeritt, seconded by Mr. Fontanna, the Council in behalf of the entire Society unanimously voted to thank and commend the professionally valuable work of the Committee on Accrediting.

The members of the committee, in addition to Prof. Krueger, are J. Lee Deen, Paul A. Herbert, Walter H. Meyer, and Richard J. Preston. The report of the committee to the membership will be found elsewhere in this issue.

The Council had previously taken the following actions which are repeated here for the information of the membership:

1. The classification "listed schools" is abolished. The Council now recognizes only two classifications: "accredited institutions" and "nonaccredited institutions."

2. There shall be no publication of the relative standing of accredited schools, or publication of the relative standing of any rated schools whether accredited or not.

3. The Committee on Accrediting was given the option of recommending that border line accredited schools be given a rating of "provisionally accredited." This rating shall be known only to the Committee, to the Council, and to the officers of the institution concerned. Provisionally accredited schools must correct the designated weaknesses within two years or revert to nonaccredited status.

(For further information on accrediting policies, readers are referred to the JOURNAL for August 1950, page 373; and for December 1949, pages 1008 and 1009.)

General

On motion by Dr. McArdle, seconded by Dr. Kaufert, the Council unanimously commended and thanked Prof. Cedric Guise of Cornell University for his valuable annual compilation of *Statistics from Schools of Forestry*, published in the JOURNAL since 1934.

President Evans requested the Council Committee on Elections to Membership to try to define eligibility specifications, with examples of qualifying experience, for the Associate

and Affiliate Membership grades, and to report at the midyear Council meeting. The personnel of the Council committee consist of R. E. McArdle, chairman, D. B. Demeritt, and F. H. Kaufert.

This committee was asked to consider also a report recommending certain changes in membership grades submitted by a specially appointed committee of the Gulf States Section, W. C. Hammerle, chairman.

Adjourned 10:45 p. m., December 13, 1950.

Report of Section Delegates' Meetings

Twenty of the Society's 21 Sections sent official delegates to the Golden Anniversary Meeting to participate in discussions among themselves and with the Council.

At a morning session on December 13, the delegates considered various administrative matters, with Robert D. Hostetter, assistant executive secretary presiding.

Samples of the newsletters issued by all Sections were on display and were studied by the delegates.

Issuance of Section officer lists as revisions to the Section Manual was recommended for the late winter and early autumn. Revision and expansion of the part of the manual devoted to membership was also recommended as a result of the December 1, 1950 ballot which authorized a Student grade and changed the requirements of the Junior and Affiliate grades.

M. M. Mosher, Inland Empire Section, was selected to report to the delegates' consensus on four other items to the Council at the afternoon joint session. The need for more adequate and concise statements of requirements for membership grades, particularly qualifying forestry experience, was expressed. President Charles F. Evans assigned to Mr. Hostetter the task of assembling recommendations of the various Sections regarding this problem for presentation to the Council at its June meeting. Recommendations should be sent to the Society office.

Another suggestion made by the delegates was that the location of annual Society meetings be publicized several years in advance. President Evans asked that the rotational system in use be published. (See Report of the Council Meeting in this issue.)

Another question raised by the Section delegates was the suitability of the Hare system of proportional representation for electing Council members. After a discussion by Henry Clepper on the merits and limitations of the system, it was suggested that information about the system be published prior to elections.

A proposal to consolidate Society membership grades was made by a committee of the Gulf States Section, headed by William C. Hammerle. The proposal was referred to R. E. McArdle, chairman of the Council Committee on Elections to Membership, for further consideration.

The principal item considered during the afternoon session concerned methods employed by the Sections in better acquainting both nonmembers and members with the objectives, policies, and programs of the Society. A panel, moderated by Dr. McArdle, was composed of the following persons: Ross A. Williams, Northern Rocky Mountain Section, who spoke on Section-school cooperation; L. F. Kellogg, Upper Mississippi Valley Section, who discussed S.A.F. displays of membership materials and publications; Archie Patterson, Southeastern Section, who described means of contacting forestry students regarding membership in the Society; James H. Kitchens, Gulf States Section, canvassing nonmember foresters; and Arthur K. Roberts, Columbia River Section, who discussed effective Section and Chapter operation as a means of gaining and holding the interest of foresters.

Although no specific conclusions were reached, the Section delegates and Council Members had a lively discussion regarding the opportunity and means available for securing expressions of the membership on important forestry issues.

B. H. Paul, chairman of the Southern California Section, had intended to attend but found it impossible to do so, but delegates of all other Sections were present. Alternate delegates from many of the Sections were present as well as the official delegates who were: Allegheny, J. Ira Kolb; Appalachian, A. E. Wackerman; Central Rocky Mountain, George K. Brown; Central States, Roy C. Brundage; Columbia River, Arthur K. Roberts; Gulf States, J. H. Kitchens; Inland Empire, M. M. Mosher; Intermountain, T. W. Daniel; Kentucky-Tennessee, J. O. Artman; New England, W. C. MacAdam; New York, A. J. Woodford; Northern California, Fred Cronemiller; Northern Rocky Mountain, Meyer H. Wolff; Ozark, W. E. Towell; Puget Sound, W. D. Hagenstein; Southeastern, B. E. Allen; Southwestern, James A. Egan; Upper Mississippi Valley, Clarence Prout; Washington, D. C., C. W. Mattison; and Wisconsin-Upper Michigan, William J. Brown.

Report of Editorial Committe for the Foresters' Field Manual

Publication by the Society of a *Foresters' Field Manual* was recommended at the annual meeting in 1947 by a special committee headed by R. R. Hill. The recommendation was accepted by the Council, and funds provided for the project in 1949.

Late in 1949 President Clyde Martin appointed an Editorial Committee consisting of E. W. Littlefield, chairman, of the N. Y. Conservation Department; William Maughan of the Cary Lumber Co., Durham, N. C.; James G. Osborne, U. S. Forest Service, Washington, D. C.; Henry Clepper, ex-officio, also of Washington; and R. D. Forbes, consulting forester, Ambler, Pa., who was appointed editor on a part-time, paid basis.

Next, 19 subject-matter committees were appointed. The policy was followed of appointing a goodly proportion, even in the chairmanships, of younger members of the Society, or those who had not hitherto served on Society committees. A strenuous effort was made to achieve wide geographical coverage, both of the United States and Canada, and to preserve a good balance between federal, state, school, and private employment. Altogether 136 members of the Society are at work on this project. As the only paid member of the group I am humbled by the devotion and enthusiasm of these men. Indeed they are "manual laborers." Their thoughtful, earnest work is to me the proof that this project is altogether worth while.

The original deadline for submitting all manual material to the editor was January 1, 1951. This has now been pushed back to May 1, which I believe to be quite realistic. At least 25 percent of the material is estimated to have reached the chairman of every committee, and probably that percent of the overall project material has had my review. Most chairmen have 50 to 80 percent of their items in

hand, and one wit claims to have sent me 150 percent of his—about half as much again as he thinks we can print!

Three of the very good publishers of scientific books have expressed sustained interest in publishing the manual. I am going to venture the guess that it will appear in print early in 1952. It will be of standard handbook size, and will contain as close to 500 pages as we can get in a $5 book.

To whom do we expect the Manual to be useful? Not to Boy Scouts or mature laymen, but to professional foresters, principally of two classes: (1) field men, defined as men stationed where files of the JOURNAL OF FORESTRY, recent government bulletins, and more than an occasional textbook, are not available; and (2) workers anywhere who want a quick answer to questions outside of their specialties. We do not expect to be of much help to specialists in their own fields.

What sort of information do we think these men will want from the manual? Not philosophy and not the reasoning behind specific information, though there may be exceptions in the case of new subjects like aerial photography and forest recreation, which have not yet been discussed extensively in publications available to the average forester. In these subjects we will try to give some elementary, background information. The principal contents of the manual will be factual material which each man, with his professional background, can use in solving specific problems.

Here is the type of problem to which we expect the manual will furnish answers. A forester working on a forest property realizes that an air photo of it, blown up from the contact print, isn't just the wonder-tool he has heard about. What better photos to get, where to get them, and how to examine them under a stereoscope?

A sawmill man comes into a territory where few mills are operating, and offers a stumpage owner a certain price. The owner consults a forester who may be unfamiliar with modern methods of timber appraisal, also with the provisions in a timber sale agreement necessary to protect the landowner's interest. He reaches for the manual.

A forester is dispatched by the boss to look at an ailing tree, or maybe a stand, and to tell the anxious proprietor what to do. With the manual at hand, he examines the tree and its environment. A diagnostic key of tree ailments, beginning with site factors, and progressing through insects, disease, and even the wilder forms of wildlife, enables him systematically to isolate the probable cause of injury.

The experienced fire warden gets to wondering whether his hand sprays and mechanical pumpers might deliver "wetter" water. The manual tells him what detergents to add, without risk of gumming up the nozzles and critical moving parts.

The district ranger suspects that a certain stand of timber is highly productive, and fully justifies the building of an access road. He has a pretty good cruise of it, but no growth data. In the manual he finds directions for calculating rates of growth from stand-data alone.

The same ranger must develop an adequate water supply for a campground. The manual not only tells him what size of pipe he needs to tap a certain spring on the mountain, but also that the trickle which serves well enough during week-days must be quadrupled, say, on Sunday afternoons.

And so on, over a variety of situations that run the gamut of forest management, range management, wildlife and recreation management, and watershed management. Foresters from time to time want to recall nearly everything they ever learned at school, and to work confidently in fields that have developed since they graduated. If humanly possible we want to help the entire profession. Therefore if you have information of a practical nature that you think should go into the manual, send it either to a committee chairman or to me. Don't wait until the manual is published, and then "pan" the manual laborers for its omission. This is *your* manual.

REGINALD D. FORBES,
Editor.

Report of Committee on International Relations

Your committee continues to follow its custom of keeping itself advised of future international meetings which are now in various stages of planning. When dates and programs are set, your committee will, as in the past, prepare JOURNAL notices for the information of the members.

Only one large international meeting of interest to foresters was held during 1950—the Seventh International Botanical Congress, of which Raphael Zon had been named Honorary President, and which met in Stockholm in July. Dr. Wm. A. Dayton was the Society's delegate to this Congress, and other Society members attending were Dow V. Baxter, G. F. Gravatt, Lee M. Hutchins, and B. Francis Kukatchka.

A meeting previously announced to be held in Ceylon in 1950 for purposes of discussing tropical agriculture and tropical forestry was cancelled. This was to have been called under the joint auspices of the Divisions of Agriculture and of Forestry and Forest Products of FAO. Insufficient preparation on the part of these Divisions made the cancellation necessary.

Fourth World Forestry Congress

When the Third World Forestry Congress adjourned in Helsinki, no place or time had been agreed upon for the next meeting, but three countries were prominently mentioned—Canada, Argentina, and the United States. Argentina has already expressed willingness to be host, but it was the consensus of most delegates that much more interest would be aroused if the U.S.A. were the host country. All other Congresses have been held in Europe, and to hold the next in this country would undoubtedly serve as an important stimulus to forestry, especially in Latin America, where it is so badly needed.

To hold such a Congress successfully requires the full support of government, industry, and the profession. Your Committee unanimously recommends to the Council that it be empowered to ascertain the opinion of the leaders in these three categories with regard to holding such a Congress, possibly on the West Coast in 1954, without, of course, committing itself to any action other than to report back to the Council for final decision as to whether or not it should undertake such a responsibility.

This subject was discussed by the Yale Forestry Alumni Association at its business meeting in New Haven, December 12. It was the consensus of this meeting that as a preliminary step the Society of American Foresters explore the attitude of the government, the forest products industries, and the forestry profession. It was also suggested that should a decision be made to hold a Fourth World Forestry Congress in North America, Canada be invited to act as co-host with the U.S.A.

International Society of Foresters and Wood Users

During the past year French foresters have created an International

Society of Foresters and Wood Users. This association includes six technical sections: Silviculture, Exploitation, Industry, Commerce, Research, Technical Publications. Your committee, in studying this new association, has felt that it is still too much in the formative stage to recommend group membership on the part of the Society, but believes that attention should be called in the JOURNAL to this international association in order that individual members who desire to join may do so. In the meantime, the committee will follow the progress of this association and make whatever recommendations may seem appropriate.

At the last meeting of the Yale Forestry Alumni Association, the following resolution was unanimously passed with regard to this subject: "The Yale Alumni Association calls the attention of the Society of American Foresters to the International Association of Foresters and Wood Users, now established in France. It recommends that the Society, through its Council, examine the organizational structure of this association with a view to recommending what modifications, if any, are advisable, and what steps necessary in order that it be suitable for either group or individual membership of the Society of American Foresters."

Corresponding Members

During the past year your committee has endorsed applications for Corresponding Membership for three foreign foresters: one from Sweden, one from Finland, and one from India. Your committee feels that definite efforts should be made to increase the number of our corresponding members, and that foreign countries should be more widely represented. The committee will undertake this task during the coming year, and asks for the cooperation of the members in bringing before them the names of eligible foreign foresters.

In this connection, your committee feels the need for a specific form to be filled out by applicants for Corresponding Membership. At present foreign foresters have been asked to use the form for "Member" which requires much more detailed information than is needed, and which is in many ways inapplicable. Experience has shown that it is both confusing and discouraging to possible candidates, and for that reason your committee has worked out a suggested form which it is submitting to the Council with the request that a small supply be printed.

University of the Andes

The Rector of the University of the Andes, in Merida, Venezuela, Dr. Eloy Davila Celis, takes the opportunity presented by the Golden Anniversary of the Society to dedicate to the Society a work of one of its faculty members, *Communa Biotica*. Your committee recommends acceptance of this gracious international gesture on the part of the University of the Andes, and that the Rector be so notified.

The University of the Andes now has a very active forestry school, and its faculty have asked the help of our membership in securing books for the forestry school library. It is planned that a JOURNAL article will be forthcoming shortly, outlining the work and needs of the school, in order that any of our membership who wish to help them may do so.

During the past year your committee has supplied information to a number of members requesting material concerning foreign forestry organizations, forestry administration in particular countries, forest and working conditions, etc.

With the improvement of conditions abroad, requests for relief ceased, and no disbursements were made from the foreign relief fund during the year. A small balance ($37) still remains unexpended.

Publications received during the year included: Vol. 1, No. 1 of *The Filipino Forester*, containing the proceedings of the first annual meeting of the Society of Filipino Foresters, organized in 1948; Nos. 9 and 10, Vol. 3, of *Unserwald*, published in Rheinhausen, Germany; and the text of Argentina's Law No. 13.273 for the protection of its forest resources.

The chairman of the committee served throughout the year as the Society's representative on the U.S. FAO Inter-Agency Committee.

E. C. CRAFTS
I. T. HAIG
LEROY HUNTINGTON
BARRINGTON MOORE
LYALL E. PETERSON
J. W. B. SISAM
J. H. STOECKELER
TOM GILL, *Chairman.*

Report of Committee on Community Forests

Your committee is rounding out the tenth year of its existence and this report is something of an inventory of the progress of the community forest movement during the past decade. As with other committees of the Society, it has had to operate largely by correspondence, and without funds it has been unable to carry out its own recommendations. The chief value of its work has come through the publication of its findings in the JOURNAL.

Despite the impotence of the committee and the absence of any nationally organized and sustained effort to advance the movement, it has made substantial progress. State forestry associations, state foresters, and here and there an individual forester have used their influence in arousing state and local interest, with many outstanding results. For several years the U.S. Forest Service maintained an office for the encouragement of community forests and was responsible for the collection of data on the progress of the development of these areas. In no year has it been possible to collect complete statistical data on the number and area of these forests, but from the information available the community forest is rapidly becoming an important factor in public ownership.

In 1941 when your committee made its first report, the statistics collected showed that there were 1,610 community forests, while today there are 3,338, an increase of 107 percent. The aggregate area in 1941 was 2,611,896 acres, and now it is 4,503,323 acres, a growth of 76 percent. These areas are found in 43 states.

Your committee is convinced that a complete survey of the forest lands owned by the public, other than national and state forests, would greatly exceed the reported figures. We know that in several states, among them Massachusetts and Virginia, strict interpretation of the statutes authorizing such forests has ruled out large areas, such as watersheds, which are publicly owned and managed as forests.

In the beginning, it was necessary for your committee to adopt a definition of the community forest, which is as follows: "Community forests are areas of woodland or of potential woodland, owned and operated by cities, towns, townships, villages, school districts, counties or other political subdivisions of the state for the benefit of all the people, through the production of forest products or the conservation of water, the protection of wildlife, the control of floods and soil erosion and the creation of opportunities for recreation." It is recognized that this definition is not complete, but it is intended to include all publicly owned woodland other than national and state forests. There is

no area limitation placed on the community forest, and they range from five acres to more than 100,000 acres.

This anniversary offers an excellent opportunity for stocktaking in the various activities of the profession. Few, if any of these activities promise more for the advancement of forestry in this country during the next half century than the establishment of community forests. The heyday of acquisition of national forests is over in many states and in some the same is true of state forests. The next step in public ownership is the community forest, and it is reasonable to believe that the progress of the next half-century in that field will place the community forest abreast of national and state forests, as factors in our forest economy. In some countries, such as Switzerland, more than half of the total forest land is in communal forests. Many successful examples of such forests in this country have been described in our previous reports.

Since this report may be read by others than professional foresters, let us restate briefly the multiple use functions of the community forest:

Wood Production: The community forest is a means of setting to work idle acres that are fitted only for the production of trees. Under forest management these acres will serve as demonstrations to the forest owners of the town on how best to manage their own lands. The timber produced should not only pay for the cost of production, but under forest management should eventually show a profit on the operation. This timber will help to support the local woodusing industries, as is done so effectively in Europe.

Recreation: One of the best uses of the community forest is for recreation. The forest is a self-supporting wild park, where the citizens of the lower income class may reap the same recreational advantages as those who can afford to visit the national and state parks and forests. It is the one way by which all the benefits of the forest can be brought to all the people.

Wildlife Protection: The community forest serves as a sanctuary for birds and animals, which not only provide pleasure to old and young, but which helps to replenish the game supply of the surrounding territory. It has been proved that good forest management and good game management supplement each other. In some of the European communal forests, when the deer population exceeds the food supply, a substantial income is obtained from special hunting licenses.

Water Conservation: The chief reason for the ownership of forest lands by cities and towns is to conserve and protect their domestic water supplies. Every acre maintained under forest cover conserves the rainfall, reduces flood and erosion damage, and sustains the underground water levels. Some of the best examples of managed forests in this country are watershed areas, where the income from the timber reduces the cost of water to the citizens. To obtain such lands in advance of the water needs of growing communities is one of the big reasons for the acquisition of community forests.

Public Education: Hundreds of community forests are being established as school forests, mainly as outdoor laboratories for the teaching of the elementary sciences. This is a common use of the European communal forests. Under proper direction school children would plant more trees on the community forest than are now being planted by the average state on state forests. The boy and girl scout groups and the 4-H Clubs are eager for this type of outdoor activity.

Seasonal Employment: In the harvesting of timber, road construction and other work incidental to the development of the forest, local farmers and others are given winter work. Likewise, in periods of depression in the local industries, profitable employment may be provided in the community forest. During the depression of the 1930's, hundreds of men were used on the town forests of New England.

Reserve Timber Supply: The community forest will eventually be brought to a sustained yield basis and this source of supply is a safeguard against emergency shortages as frequently occurs in time of war. During coal shortages in New England thousands of cords of wood have been taken from the town forests to supply the needy with fuel.

Recommendations Reiterated

Your committee from time to time during the past decade has made recommendations, which invariably have been unanimously adopted by the annual meeting—and then carefully placed in the archives of the Society. The committee has been in the position of a quarter-back out on the field, calling signals without a team. No one can say but some of the proposals of the committee might have fallen on fertile soil and have been responsible in a degree for some of the progress which has been made. Various agencies have spearheaded this movement in their respective states with creditable results. But on the whole, there is a deplorable lack of national leadership to make this important conservation movement effective. We realize that the Society is not in a financial position to assume this responsibility, but we believe that many foresters are overlooking an unusual opportunity to bring the benefits of forestry to the people, and thus popularize the work of the profession.

We have recommended that every state forester investigate the possibilities of advancing better forest management through the community forest. The forestry departments of New York, Pennsylvania, Michigan, and several other states have made substantial progress in this field. In our opinion, the establishment of a division of Community Forests in a state forestry department, under the direction of a forester with organizing ability, would obtain greater support for all the work of the department. Besides, one of the weaknesses of the community forest is lack of proper technical guidance of the committee in charge. This is surely an opportunity, if not a responsibility, of the state forester, since these forests are owned by the public. In New England much of this work is now being done by the New England Forestry Foundation. In Wisconsin the state conservation department has taken over the silvicultural managament and protection of 28 county forests aggregating more than 2,000,000 acres. These forests, comprised of cutover tax-delinquent pine lands under state supervision have been rehabilitated and brought to such a state of productivity that they now yield substantial revenues to the respective county owners. Your committee recognizes that conditions vary from state to state, and that no formula can be devised that will be equally applicable throughout the country.

From the purely selfish professional standpoint, the extension of the community forest iden will open a wide field for the employment of foresters. As an example, the little town of Russell in Massachusetts, with less than 1,300 population and with a town forest of only 3,000 acres, employs a forester on a full-time basis. In Europe foresters are engaged to manage much smaller areas. Since the Society now has members scattered throughout the country, respected citizens of their communities, they have in the community forest an opportunity to lead in the local conservation movement.

At the Boston meeting two years ago, your committee recommended that the Society formally request the American Forestry Association to initiate the consolidation of the efforts of the state forestry associations and other conservation groups in the creation of community forests, but as yet this suggestion has not been activated. Here is a definite job for some national agency. There are several national organizations which could take the lead in this movement, since in the aggregate the community forest can be made a powerful factor in the advancement of soil and water conservation, wildlife protection and recreation, as well as timber production. However, in our judgment, it should be executed by a forestry organization rather than some other conservation group.

It requires some exercise of the imagination to visualize a beautiful, profitable forest on present fire-scarred, clear-cut or tax delinquent lands, as well as a lot of hard work to convince a community that such a project is practicable. But, as Calvin Coolidge once said, "We must plant today that our children may reap the harvests."

NELSON C. BROWN.
GEORGE A. DUTHIE.
CHARLES G. GELTZ.
O. BEN GIPPLE.
E. V. JOTTER.
G. S. MCINTIRE.
WILLIAM A. SYLVESTER.
PAUL W. SCHOEN.
HARRIS A. REYNOLDS, *Chairman.*

Report of Committee on Civil Service

The Committee (1) reaffirms its recommendation of December 17, 1948 at Boston, and of October 11, 1949 at Seattle, namely that in place of the psychometric test as given for the last three years by the Civil Service Commission, the Society urge the return to a subject matter test, supplemented by a general test, measuring general intelligence, aptitudes, and interests. (Supporting statement will be found in the 1948 report of the Committee.)

2. It is felt that while there has been improvement in the matter of elapsed time between examinations and grade release and appointment, some measure of this perennial complaint is still valid. It seems that 75-90 days should be a maximum which would cause no hardship to the C.S.C. with proper planning and operation.

3. In some instances there has been what appears an unnecessarily short period between the announcement of the examination and the date on which it is held.

4. Some schools report a need for improvement in the administration of the examination. They are convinced that part of poor scores of some examinees can be attributed to mechanical or related difficulties. For example on some occasions local examiners have failed to provide the proper pencils. Even with the use of proper pencils it is easy for the examinee to fail to make a mark which will record in the grading machine.

5. Some schools report the use of poorly qualified assistants in administering the examination. Poor speaking voices and lack of standardization in instructions given have been cited as reasons why directions have not been made clear to examinees.

The Committee believes that this examination should be one of distinction and dignity, which forestry students will take satisfaction in negotiating.

It is felt by the Committee that the consensus of the range management schools is reasonably satisfied with the requirements for the range option of the junior forester examination as set up in the letter sent out by the U.S. Forest Service on September 20, 1950.

D. J. WEDDELL.
W. C. PERCIVAL.
E. R. MARTEL.
D. S. JEFFERS.
VICTOR BEEDE, *Chairman.*

Report of Committee on Accrediting Schools of Forestry

The Committee on Accrediting Schools of Forestry submits herewith its recommendations as to the status of those institutions of higher learning, which applied during the year for examination by the Society.

In May 1950, the Committee submitted to each applicant institution the questionnaire which had been previously approved by the Council. Since late September, visiting committees have called at each of these institutions in order to evaluate those qualities of forestry curricula, which are difficult or impossible to state in a questionnaire. The recommendations of the Committee on Accrediting are based on the questionnaires, the reports of the visiting committees, and extended discussion of each case by the Committee at its meeting of December 12, 1950.

As it completes its task on current accrediting, the Committee directs the attention of the Council to the need for continuing discussion and development of forestry education. The Committee suggests that the Council charge the Division of Education with the responsibility for directing this discussion with the objective of providing a broader base for future accrediting programs of the Society.

During the course of its work, the Committee on Accrediting has witnessed both a lack of knowledge and a lack of interest on the part of those members of the Society not engaged in teaching as to what constitutes a good forestry education. A profession remains strong only so long as it has a continuing stream of well-trained young men coming into that profession. The character of the training should be of as much interest to the practicing forester with a quarter-century or more of experience as it is to the young man currently undergoing that training. The Committee offers as a suggestion for the stimulation of more widespread interest in education among all members of the Society the possibility of a Committee on Education in each section of the Society, with membership restricted, purposely, to those members not engaged in education.

The Committee on Accrediting calls the attention of the Council to the recent administrative changes for forestry education at the University of Michigan and Michigan State College. At the former, forestry is now a department of the School of Natural Resources and at the latter a department of the Division of Conservation. The net effect of these changes is to accentuate the trend of the past few years, in which range management, wildlife management, and wood technology (in the broadest meaning of technology) are emerging as full-fledged professional fields. The day is not far distant when these new professions too will find it desirable and necessary to engage in accreditation. To avoid undue opposition from the recently formed National Commission on Accrediting, composed of executives of institutions of higher learning, the Council of the Society should begin immediately the exploration, with these new sister professional groups, of the possibility of a combined accrediting agency similar to the Engineers' Council for Professional Development.

J. LEE DEEN.
P. A. HERBERT.
R. J. PRESTON.
WALTER MEYER.
MYRON KRUEGER, *Chairman.*

Report of Committee on the Library of Congress Photograph Collection

The collection of photographs of foresters in the Library of Congress, better known as the Pinchot Collection, is progressing slowly but surely. During the past year several of the Section committees have come through in fine shape with a large number of photos, but when one realizes that out of a membership of 7,000 in the Society only 1,000 pictures are in the Collection, it is evident that we have really just made a start.

The collection as it stands is in fine shape thanks to the untiring efforts of Dr. T. S. Palmer and Carl Stange of the library. Each photo is in an individual envelope and the index is so well arranged that a picture can be found in less than a minute. I am told that it is already being referred to quite frequently by writers and others that are interested, which satisfactorily proves the value of the project.

So I ask again: Please send your photo to me or to your Section chairman, and please don't forget to fill out the short biographical form which includes full name (no initials), date and place of birth, present position, articles or books you may have written, and the name of any reference work in which a more complete biography may be found.

HELMUTH BAY, *Chairman.*

Report of Committee on Policies and Objectives

The Council in reviewing the committee's field of activity in June 1950, indicated that the first step should be to weed out obsolete policy statements before venturing into new fields of policy or objectives.

Your committee was furnished with chronological compilations of policies adopted either by the council, referendum vote by membership, or other means, covering the period 1914 to 1947 inclusive.

Eighty-seven different items are listed varying in length from two or three lines covering issuance of certificate to Fellows, to seven pages for one dealing with "a plan for reorganizing the conservation work of the Federal Government." The longest statement covers fifteen pages out of a total of eighty. The document is a very interesting historical record of the growth, development, and progress of the Society during this thirty-four year period. Action taken on these 87 items has never been cancelled or recinded. The Society is still technically bound by statements no longer applicable, or even contrary, to current policy and objectives.

The Council suggested that these 87 items be classified into three groups providing for:

1. Deletion.
2. Revision or restatement.
3. New definite policies.

Review of this material indicated that a considerable number of these items, particularly those dealing with administrative policy or organization, are still reasonably applicable.

In order to cover the entire compilation a fourth group has been added. These groups are defined as follows:

1. Designate the items which should be discarded because they are completely out of date.
2. Designate the items which are still current but in need of revision or restatement.
3. Designate the items not now adequately covered by policy statement on which definite policies should be established.
4. Designate the items which appear to be reasonably current and of value without change.

Your committee is recommending to the Council the cancellation or deletion of 48 of the 87 items, 7 are suggested for revision or correlation, 7 for new policy statements, and 25 for retention as being reasonably current and satisfactory.

AUSTIN HAWES.
T. T. MUNGER.
ROBERT CRAIG.
WILLIAM L. HALL.
F. H. BRUNDAGE, *Chairman.*

Report of Collating Committee on Grade Standardization of Forest Planting Stock

The Collating Committee on Grade Standardization of Forest Planting Stock has little to report for this past year.

Assembling of data and recommendations from the regional subcommittees has been held in abeyance until all had submitted their preliminary reports. The last two have now been received. These reports vary in completeness; much work will remain to be done after the first draft of the combined report has been made. However, we have felt right along that this first step is the slowest and most difficult and that progress from here on out will be more rapid.

D. S. OLSON, *Chairman.*

Report of Committee on History of Forestry

Early in 1946 Shirley W. Allen, then president of the Society of American Foresters, appointed the present members of the Committee on the History of Forestry. They decided to prepare a history of the growth of the profession in America to appear in 1950 on the 50th anniversary of the founding of the Society and on the 75th anniversary of the American Forestry Association. The committee as a whole considered various ways in which the history could be prepared and decided upon the approach and the outline that were ultimately used. The Chairman selected the authors and correlated the subject matter in the several chapters. Each chapter author, however, assumed full personal responsibility for the facts and point-of-view contained in his chapter. The history, entitled *Fifty Years of Forestry in the U.S.A.*, has been published and is now on sale.

Many persons other than the chapter authors and committee members contributed substantially to this history. Special acknowledgment is due Dean Henry Schmitz for a review of nearly all of the manuscript. Henry Clepper, executive secretary, and Albert G. Hall, editor, of the Society of American Foresters, in addition to a final review of the manuscript, carried the full burden of arrangements with the publisher. Miss L. Audrey Warren and her associates in the business office of the Society prepared the index. The Chairman acknowledges the assistance of Mrs. Virginia K. Tomlinson in carrying the large volume of stenographic work involved in the preparation of the manuscript. Without the wholehearted support of Shirley W. Allen, Clyde S. Martin, and Charles F. Evans, past and present presidents of the Society, the work of this Committee could not have been accomplished.

With the publication of *Fifty Years of Forestry in the U.S.A.*, the 5-year objective of this Committee as presently constituted has been attained. In the name of the Committee I, therefore, recommend that the President of the Society of American Foresters discharge the present members and that

any future work that may be undertaken in this field be handled by a new committee.

HUGH P. BAKER (deceased).
E. H. FROTHINGHAM.
WILLIAM L. HALL.
RALPH S. HOSMER.
S. BLAIR HUTCHISON.
L. F. KELLOGG.
J. P. KINNEY.
GIFFORD PINCHOT (deceased).
ROBERT K. WINTERS, *Chairman.*

Report of Joint Committee of the Society of American Foresters and the American Society of Mechanical Engineers

During the year it did not prove feasible to hold a spring meeting in spite of rather extended correspondence to arrange a date and meeting place. However, a late fall session was arranged for November 28 in New York City in connection with the Wood Industries Division program at the annual national meeting of the A.S.M.E.

Activities for the year were somewhat limited by our inability to hold a spring meeting, yet correspondence had been quite active between members of the Committee and between this Committee and the Spark Arrestor Committee of the Society of Automotive Engineers. Accordingly, we do have progress to report.

At the request of the program committee of the A.S.M.E., our Committee arranged for and sponsored two papers which were presented before the Wood Industries Division Session on November 28. These were "Field of Engineering in Forest Protection" by Gilbert Stewart and "Analytical Studies in the Suppression of Wood Fires" by George Tauxe and Ray L. Stoker. Both papers were very well received.

At the spring meeting of the A.S.M.E. held in Washington during the period April 13-14, 1950, a special session was conducted by the Wood Industries Division of the A.S.M.E. in cooperation with the A.S.C.E., the Forest Products Research Society, the S.A.E. and the Society of American Foresters. At this session, A. P. Dean presented a paper entitled "Machines and Forestry" which stimulated great interest among the engineering members of the Society in further promoting the mechanization aspects of forestry. As a result of that interest, suggestions have come to the Committee that its scope be enlarged to include all equipment aspects of forestry in order to cover all liaison with the various engineering societies. This has been discussed informally between the Committee and officers of both the S.A.F. and A.S.M.E. No formal action so far has been taken. It seems best to continue the Committee under very much its present charter until definite projects and functions beyond its present scope are clearly needed. In the meantime, the Committee will be very happy to accept assignments somewhat outside the category of forest fire equipment wherever there is an opportunity to give service. The question of future broadening of cooperation between the S.A.F. and the various societies is important and needs further encouragement. The best form for such cooperation to take will be given further attention as problems and opportunities develop.

The tentative agenda for the November 28 meeting was as follows:

1. R. B. Sargent's Pumper Test Code and action in respect to it.
2. Present status of spark arrester specifications; report by W. E. McCraw.
3. New Developments in Fire Hose; size up by Flounders.
4. Progress Report on Jeep Tests; G. I. Stewart.
5. Future Program.
6. Organizational Matters.

Committee discussion followed this agenda quite closely and in addition brought up several new proposals for action during 1951. These will also be discussed.

Pumper Test Code

Copies of the code were circulated to various manufacturers and a few special comments were received. Copy was also forwarded to the Standards Committee of the A.S.M.E which is giving it further study.

R. B. Sargent proposed that the Forest Service use the proposed standard form for pumper performance curves on a trial basis until its value can be established, but that pumper test procedures and standards of the National Hydraulic Institute be accepted. He proposed too that the weight of fuel required for ten hours' operation be taken into account in rating the weight: water horsepower ratio of the pump.

The Committee was in general agreement that these were good recommendations but recognized that simplicity and reliability of a pump need to be taken into account as well as the other criteria developed for the code. There was some question too whether or not a standard abrasive test should be made optional wherever the ability to pump dirty water was important. It was the general consensus that the code can be very useful but that its application will no doubt need to be prefaced by qualitative considerations in the Committee's endorsement of the code. The weight: water horsepower ratio can serve very well as an expression of the designer's efficiency score and as a measure of portability. The standard test procedures and performance curves should be of considerable aid to purchasers and operators of fire pumpers. Further follow-up on the code will be made in the light of these considerations.

Spark Arrester Specifications

W. E. McCraw of the Committee reported on the progress made by the Spark Arrester Committee of the S.A.E. The procedure for checking spark arresters has now been prepared in final written form and has been approved by the Spark Arrester Committee. It has been submitted to the Standards Committee of the S.A.E. and approval is anticipated by January 1, 1950.

This encouraging progress is of particular interest to foresters in fire control work, and definite measurable standards for spark arresters for various types of gas and diesel engine equipment are now in sight. As soon as the test code is approved the question of the proper testing agency for spark arresters will need to be decided. It has been suggested that the best agency would be the Underwriters Laboratories. However, this question will be taken up with the S.A.E. Committee.

Fire Hose

Due to storm conditions J. M. Flounders was unable to make his schedule and could not be present at the meeting. Consequently, no report was made on progress in fire hose.

Jeep and Other 4-Wheel Drive Equipment

G. I. Stewart reported further on the tests made of jeeps and other 4-wheel drive equipment for fire purposes. So far the uses for which such equipment are proposed fall in three categories: as a scout car, as the chassis for a pumper tanker, and as the traction unit for plows. The suitability particularly of jeeps for the first purpose is already well established, particularly if the car is properly equipped with radio. Similarly

the suitability of 4-wheel drive equipment for tanker use has been well demonstrated, if good design is used and weight limitations are observed. For the jeep a tanker capacity up to 80 gallons is effective. For building fire line with a plow only limited success has been attained. It is, of course, not to be expected that traction comparable to a crawler tractor can be obtained from a truck. Trucks have not been designed for maximum drawbar pull. However, tests have shown that it is possible to build fire line quite rapidly in easy going if a trailer type of plow is used and it is properly designed to perform without exceeding traction limitations. Test results are available through the Michigan Forest Fire Experiment Station on cooperative projects carried out with the Forest Service.

Perhaps the most important universal need wherever jeeps or other 4-wheel drive equipment are to be used for fire purposes is the proper armoring to enable travel through heavy timber cover without undue damage to the body of the jeep or truck. Specifications for armoring both jeeps and power wagons have been developed and are available. It was agreed that the Committee should take action to make sure that the availability of these specifications are known. Arrangements will be made to see that they are written up in *Fire Control Notes* and that they will otherwise be brought to attention.

Future Program

Henry Clepper reviewed the circumstances under which the Committee was created and requested that consideration be given to possibilities of sponsoring some research through colleges of mechanical engineering particularly where they are in contact with a forestry school in the same institution. The Committee agreed that this would be highly desirable and there was considerable discussion of needs and possibilities in this field. It was suggested too that the Committee might function very well in giving counseling service to student engineers who are interested in the engineering aspects of forestry.

There was considerable discussion of the need of re-examining and of formulating the college training that would best fit students for combined engineering-forestry careers. The development and increasing use of mechanical equipment requires greater emphasis on mechanical engineering subjects. Mr. Stewart has discussed the matter at times with Dean Dana of the University of Michigan and he was assigned the task of contacting deans of other universities, including Wangaard at Yale and Boelter of the University of California at Los Angeles.

The general thought was that at least some of the schools should make provision for degrees with a mechanical or civil engineering major and a forestry minor or a forestry degree with a mechanical or civil engineering minor. In general the young engineer would need to be qualified as a forester to have best opportunities within a forestry organization. Mr. Clepper suggested that we take up this matter with the educational committee of the S.A.F. and it was generally agreed that this whole subject matter will be considered actively by all members of the Committee and that Mr. Stewart will be kept informed of all action taken. Concurrently the Committee proposes to make a survey of the demand for personnel having this combination training.

Organizational Matters

The possible need of expanding the Committee and its function to cover all engineering in forestry was discussed in the preliminary remarks. No immediate change in this respect is contemplated. However, as reported last year the Association of State Foresters has accepted the invitation to have one or more members represent them on this Committee and their president, DeWitt Nelson designated State Forester William F. Schreeder of Connecticut to participate in the Committee discussions in New York City. Unfortunately, Mr. Schreeder found it impossible to get to the Committee session and we were without the benefit of this representation. As soon as active representation is in effect more attention will be given to the function and program of the Committee from the point of view of service to the state forester.

S.A.F.
C. S. COWAN.
GILBERT I. STEWART.
W. E. MCCRAW.
WM. F. SCHREEDER (*Temporary representative, State Foresters Association.*)
A. A. BROWN, *Chairman.*

A.S.M.E.
HORATIO BOND.
J. M. FLOUNDERS.
R. B. SARGENT.
IRA C. FUNK, *Chairman.*

Meeting of Division of Education

The 1950 meeting of the Division of Education was called to order by Chairman R. I. Ashman, at 10:15 a.m., December 13, 1950.

The report of the Committee on Graduate Training in Forestry, prepared by Robert Cockerell, was presented by C. F. Korstian. Comments on the report were made by Shirley W. Allen and D. S. Jeffers. A motion by Hardy L. Shirley that the committee be continued was carried.

Earl L. Stone advised that the Committee on Teaching of Forest Soils in Forestry Schools was not ready to report except progress only. The Division voted to continue this committee.

Fremont Rider of the Microcard Foundation discussed the use of microcards for forestry publications. Equipment for use in reading microcards was exhibited.

Lewis M. Turner discussed testing and prediction of success in Civil Service examinations and in subsequent employment.

Gordon D. Marckworth presented the statistics on forestry school enrollment for 1950, and discussed the trends and the probable effect of total mobilization on enrollment. The picture presented by Marckworth was not pleasant.

The morning session was completed by Earl R. Porter who presented a paper on "Apprenticeship training for foresters in the Southern Pulpwood Industry."

The afternoon session was opened by Paul Dunn who reported on the progress being made on the work of compiling titles of theses of candidates for advanced degrees in forestry. Publication is planned for the spring 1951.

A most interesting panel discussion followed on the subject "the forestry curriculum." Participating in the panel were Hardy L. Shirley, Lloyd P. Blackwell, H. D. Cochran, and George L. Drake, who discussed various aspects of the problem of sound training for foresters.

The second panel of the afternoon on "apprenticeship training in forestry" was presented by E. F. Heacox, C. E. Hadley, Richard J. Preston, Jr., J. Miles Gibson, and L. M. Correll.

To close the afternoon session a nominating committee appointed earlier by Chairman Ashman presented a slate of candidates for Division officers. The following candidates presented were elected by unanimous bal-

lot to serve in 1951.

Chairman, W. C. Percival, University of West Virginia, Morgantown, W. Va.

Vice Chairman, Glen R. Durrell, Oklahoma A and M College, Stillwater, Okla.

Secretary, T. D. Stevens, Michigan State College, East Lansing, Mich.

GEORGE B. HARTMAN, *Secretary.*

Meeting of Division of Forest Economics

The Division of Forest Economics held a joint meeting with the Division of Silviculture during the morning of December 15. Following opening remarks by T. W. Daniel, chairman of the Division of Silviculture, Chairman Ralph W. Marquis of the Division of Forest Economics presided during the remainder of the meeting. Prior to the delivery of the various scheduled papers Chairman Marquis read the following tribute before the group:

"During the past year the Division of Forest Economics lost one of its most highly regarded and active members in the death of Roy B. Thomson. Recognized nationally as a forest economist Roy contributed through his works, his writings, and his exploratory thinking to the elevation of forest economics to a high place in the field of forestry. As a teacher, he stimulated the thinking of students by his friendly attitude and painstaking exposition of economic principles and their applications in forestry. As a man, Roy was generously endowed with all of the finer qualities so essential to constructive living. His kindly, thoughtful, friendly, yet competent way with students, colleagues, and professional and personal associates endeared him to all. The Division of Forest Economics of the Society of American Foresters at this annual meeting pays tribute with these few words and a minute of silence to the memory of our friend, Roy Bertram Thomson."

Leonard I. Barrett, Chief, Division of Forest Management Research, U.S. Forest Service, presented a paper, "Relations of Forest Management and Economics" in which he emphasized three distinct levels of relationship. Following Mr. Barrett's paper William A. Duerr of the Southern Forest Experiment Station discussed "The Role of Economics in Forest Management" from the standpoint of maximizing net profit.

The remainder of the formal program consisted of a panel covering "The Application of Economics to Silvicultural Problems." In his paper, "The Application of Economics to Silviculture in the Management of Small Woodlots in the Northeast," E. B. Moore of the New Jersey Department of Conservation and Economic Development dealt primarily with the problems in the oak-yellow poplar forest type of New Jersey.

N. T. Barron, chief forester for the Camp Manufacturing Company, Inc., Franklin, Va. presented "A Method in Converting Unmanaged Loblolly Pine Stands to Sustained Yield" by use of a "Forest Sky-Line Graph" developed by A. E. Wackerman, professor of forest utilization, School of Forestry of Duke University.

Walter M. Zillgitt of the Lake States Forest Experiment Station concluded the panel with a paper concerning the "Conversion of Mature Hardwood Stands to Sustained Yield" in which he discussed the problems as related to forest stands of the Lake States.

Because the speakers stayed well within their time limit, there was almost a full hour left for discussion. Many of the group directed both questions and comments to the members who had presented papers.

During the afternoon the Division of Forest Economics held a short business meeting. Chairman Marquis presented the report of the Committee to Investigate the Income Tax. At present there has been no action taken since all members of the Committee have been too busy with other matters.

William A. Duerr reported for the Committee on the Scope and Method of Research in the Economics of Forestry. The main work of this committee has been the compilation of a book on the scope and methods of forest economics research, a project launched in July 1947 under the Charles Lathrop Pack Forestry Foundation and S.A.F. sponsorship. All of the manuscript, the work of about 80 men and women, is now complete with about two-thirds of it in final form. The deadline for submitting the manuscript to the Pack Foundation is June 1951. The Committee reports, "We will meet this deadline."

During the course of the meeting it was suggested that the Division might well consider a joint meeting with one of the other Divisions at the 1951 annual meeting of the Society. This was prompted by the success of the past two joint meetings that have been held.

The following officers were elected for the coming year:

Chairman, Lee M. James, Southern Forest Experiment Station, New Orleans, La.

Vice chairman, Eugene V. Zumwalt, Yale School of Forestry, New Haven, Conn.

Secretary, John Zivnuska, School of Forestry, University of California, Berkeley, Calif.

Members of the executive committee are: R. N. Cunningham, Lake States Forest Experiment Station, St. Paul, Minn., and A. Z. Nelson, Consulting Forester, East Ipswich, N. H.

EUGENE V. ZUMWALT, *Secretary.*

Meeting of Division of Forest Products

Chairman Roy M. Carter called the meeting of the Division of Forest Products to order at 2 p.m. on December 15 in the Chamber of Commerce Building, Washington, D.C. Attendance totaled 82.

The general theme of the meeting "Progress in Forest Utilization and Its Effect on Forest Management Practices" was announced, following which the several speakers discussed this topic with reference to specific areas and timber types. The speakers and their topics were as follows:

1. "The Relationship Between Forest Utilization and Forest Production." Ralph C. Hawley, School of Forestry, Yale University, New Haven, Conn.

2. "Forest Products Utilization, the Key to Good Forestry in the Pacific Northwest." Clyde S. Martin, Weyerhaeuser Timber Company, Tacoma, Wash.

3. "Trends in Utilization and Their Influence on Management Practices in the Central Hardwood Region." Roy C. Brundage, Department of Forestry, Purdue University, Lafayette, Ind.

4. "Forest Utilization and Management Practices in Bottomland Hardwoods." John A. Putnam, Southern Forest and Range Experiment Station, Stoneville, Miss.

5. "Hardwood Control *vs.* Hardwood Utilization in the Southern Pine Region." Richard A. Hertzler, Asheville, N.C. and Leon E. Chaiken, Charleston, S.C., both of Southeastern Forest and Range Experiment Station.

The papers and discussion pointed out that, while in the Pacific Northwest great advances are being made in the utilization of less valuable species and low-quality wood resulting in opportunities for more intensive management of forest lands, eastern and southern regions are still suffering from lack of markets for low-quality hardwood material. Until such markets are found, efficient management of stands containing hardwood in any quantity will be retarded.

Officers elected for the coming year are as follows: Chairman, M. M. Lehrbas, Southern Forest Experiment Station, New Orleans, La.

Vice chairman, Fred E. Dickinson, Yale School of Forestry, New Haven, Conn.

Secretary, Robert C. Fraunberger, South Eastern Industries, Philco Corp., Philadelphia, Pa.

The chairman announced that a request had been received for the Division to draw up a list of consultants to the forest products industries. Action on this request was deferred.

The Division was issued an invitation to hold a joint meeting with the Division of Private Forestry at the next annual meeting.

The meeting adjourned at 5 p.m.

FRED E. DICKINSON,
Secretary.

Meeting of Division of Forest Recreation

The meeting of the Division of Forest Recreation was held in the Mayflower Hotel, Washington, D.C. on December 15, 1950.

Chairman Meyer H. Wolff presided, with James H. Tyndall, vice chairman, the only other division officer present, acting as Secretary.

A total of 60 foresters attended the meeting which was so lively with discussion that the last paper had to be cut short to make the room available for an evening meeting.

In keeping with the anniversary theme of past and future in recreational forestry; it was logical that the first paper on the program should be "The Place of Forest Recreation in the American Foresters' Professional Field." Shirley W. Allen, School of Natural Resources, University of Michigan, reprimanded the "logging forester" for his failure to recognize the value of, and to give adequate attention to, recreational forestry in forest management. Mr. Allen reminded the group that the days when the landscape architect and other specialists could be called upon to handle all such specialist work are over, and that foresters must now take over in both organization and supervision of recreational activities.

James L. Bossemeyer, National Association of Travel Officials, Washington, D.C., presented the paper, "Forest Recreation as an Economic and Business Asset." He stated that there is too great a tendency for many people to treat recreation as a nonessential in life. He also pointed to the fact that three out of every four people employed in the industrial field now receive vacations with pay, and that travel now represents one of the principal uses of vacation time. He stated that recreation expenditure, today, is equal to one-tenth of our national income.

Because of his absence, James L. Goulden's "Report of the National Recreation Policies Committee," was read by John Coffman, of the National Park Service. Although this committee has not been acting for a sufficient length of time for results to be evident, it was pointed out that the committee represents a cross section of the interests of several organizations and associations concerned with the conservation of the nation's natural resources.

Arthur C. Elmer, Michigan Department of Conservation, presented the paper, "The Public's Interest and Responsibilities in Forest Recreation on Privately Owned Forest Lands." Mr. Elmer stated that the most important forest recreation problem of today is to provide the land needed for public use. He mentioned the need for enlisting the aid of the private landowner, and suggested that some sort of renumeration or tax exemption might be worked out to obtain the private landowner's aid.

John H. Sieker, Division of Recreation and Lands, U.S. Forest Service, presented a paper entitled "Forest Recreation in the Next Fifty Years." Mr. Sieker, with the use of a "crystal ball" gave the group an idea of what the recreational forester's problems might be like in the year 2000. He predicted that the use of forest recreation areas would be quintupled in the next fifty years.

James H. Tyndall, Forest Preserve District, Cook County, Illinois, in a paper entitled, "Comparisons Between Wild Land Forest Recreation and Urbanized City or Rural Park Recreation," showed that regardless of the administering agency, all parks are related, and whether they house wild land recreation or urbanized recreation is largely determined by their size, physical makeup, and proximity to densely populated areas.

"Harmonizing Forest Recreation in Multiple Use of Forests" was the title of the paper presented by Bernard Frank, Division of Forest Influences, U.S. Forest Service. Mr. Frank stressed the fact that all forest land has a recreational appeal, and therefore recreation in some form must be considered in all forest land management.

The last paper was by J. V. K. Wagar, Division of Forestry and Range Management, Colorado A & M College, Fort Collins, Colorado. In this paper, entitled "Some Major Principles in Recreation Land Use Planning" Mr. Wagar stressed the fact that we never can find a final national recreation land-use policy until we have a national general land-use policy, of which it will form a part.

The following officers were elected: James H. Tyndall, chairman; C. Frank Brockman, vice chairman; H. L. Bill, secretary; with Philip Bryan and Robert Monahan, members of the executive committee.

JAMES H. TYNDALL,
Acting Secretary.

Meeting of Division of Forest-Wildlife Management

The integration of wildlife management with silviculture was the central theme for activities of the Division of Forest-Wildlife Management during 1950. These activities included a one-half day meeting in San Francisco during the 15th North American Wildlife Conference in March, cooperation in the compilation of the Foresters' Field Manual, and culminated with the meeting of the Division on the afternoon of December 15 at the Society's Golden Anniversary Meeting. Object of the year's program was to stimulate forest workers to secure a better place for wildlife in multiple land use and to recognize what might be done to favor wildlife in cover manipulation resulting from the harvesting of timber and forage.

Topics of papers and those who presented them at the Golden Anniversary Meeting were: "Planning for Wildlife on a Managed Forest," Kenneth A. Reid; "Integrating Stand Improvement and Habitat Improvement," C. V. Severinghaus; "The Land Management Program of the Pennsylvania Game Commission," C. C. Freeburn; "Big Game Management on Cooperative Wildlife Areas," Malcolm G. Edwards; "Cooperative Game Management on Virginia National Forests," C. F. Phelps and James Thornton; and "The Place of Wildlife Management in Forestry," Paul A. Herbert.

Also presented was the report of a committee appointed by the Division chairman, Fred P. Cronemiller, at the March meeting. Chairman of the committee on the place of wildlife management in the forestry curriculum was Harold W. Steinhoff and ad-

ditional members were Theodore C. Fearnow, Paul A. Herbert, A. Starker Leopold, and Ernest Swift. The report follows: "A forester is one capable of managing forested wild lands. It is on these lands that much of the nation's wildlife is produced. In the interests of wise land use, the forester cannot escape dealing with wildlife problems. Therefore, wildlife management training is of the utmost importance for the professional forester, and should hold a definite place in his college curriculum."

More than 50 persons attended the Washington meeting where the following officers were elected to serve during 1951:

Chairman, Warren W. Chase, University of Michigan, Ann Arbor, Mich.

Vice Chairman, Paul Dalke, Idaho Cooperative Wildlife Research Unit, Moscow, Idaho.

Secretary, Richard E. Griffith, U. S. Fish and Wildlife Service, Washington 25, D. C.

Executive Committee, Ernest Swift, Wisconsin Conservation Commission, Madison, Wis. and Merle A. Gee, U. S. Forest Service, Washington 25, D. C.

F. P. CRONEMILLER,
Chairman.

Meeting of Division of Private Forestry

Chairman Earl Porter called the meeting of the Division of Private Forestry to order at 9:00 a.m. on December 15, 1950.

In keeping with the general theme of the Societys' Golden Anniversary Meeting, "American Forestry in the Twentieth Century," the division's dual topics of discussion were "Private Forestry for 50 Years" and "Private Forestry Looks Ahead." Twelve papers were presented, giving the points of view of forest industries, federal agencies, state organizations, and farm forestry. Those who prepared papers were E. A. Sterling, Montrose, Pa.; David Campbell, Camden, Ark.; Norman Jacobson, Tacoma, Wash. (Paper read by George L. Drake, Shelton, Wash.); W. D. Hagenstein, Portland, Ore.; Russell Watson, Manistique, Mich. (Paper read by W. F. Ramsdell, Ann Arbor, Mich.); Julian McGowin, Chapman, Ala.; F. W. Besley, Laurel, Md.; Fred Wilson, Madison, Wis.; Dahl Kirkpatrick, Albuquerque, N. Mex.; Arthur Spillers, Washington, D.C.; Woodbridge Metcalf, Berkeley, Calif.; and Kenneth E. Barraclough, Durham, N. H.

Several hundred persons attended the morning and afternoon sessions of the division which were held in the ballroom in the Mayflower Hotel.

Moderator for the first session was Charles A. Gillett, Washington, D. C., while M. H. Collet, New York, N. Y. served in the same capacity during the afternoon.

Those in attendance voted in favor of a proposal for the Division of Private Forestry to gather information on proceedings and measures being taken in various states relative to the licensing of foresters.

The group also favored a motion made by William B. Greeley that the theme for the 1951 meeting of the division center on the integration of wood utilization and plant utilization. An invitation was extended to the Divison of Forest Products to meet jointly with the Division of Private Forestry in 1951.

David Campbell was appointed to head a committee to confer with the Division of Forest Products regarding a proposal to combine the two Divisions.

New officers of the Division of Private Forestry elected to serve during 1951 are:

Chairman, M. H. Collet, West Virginia Pulp and Paper Company, New York, N. Y.

Vice Chairman, Julian McGowin, W. T. Smith Lumber Company, Chapman, Ala.

Secretary, N. T. Barron, Camp Manufacturing Company, Inc., Franklin, Va.

Executive Committee, E. F. Heacox, Weyerhaeuser Timber, Tacoma, Wash., Bruce Buell, Northern Paper Mills, Green Bay, Wis., and Wayne Lewison, Draper Corporation, Plymouth, N. H.

N. T. BARRON, *Secretary.*

Meeting of Division of Public Relations

The Division of Public Relations initiated its program with an informal pre-meeting get-acquainted session held at 7:30 p.m., December 13, attended by 50 public information specialists. Chairman Floyd E. Carlson presided. The program consisted of an informal discussion of J. H. Kitchens' suggestion that the Division sponsor a Forestry Educational Congress for the purpose of coordinating on a national level the forestry educational work of various agencies. This meeting adjourned at 11:20 p.m.

The Division convened officially at 9:15 a.m. on December 15 in the Jefferson Room of the Mayflower Hotel for its all day session. Officers present were Floyd E. Carlson, chairman; J. H. Kitchens, Jr., vice chairman, and Albert Arnst, secretary. A total of 120 attended the panel discussions on the program, with registration from all parts of the country.

The theme of the program was a "how-to-do-it" approach in public relations, stressing various techniques useful in carrying out public information work. Program organization consisted of five hour-long panels, with a principal speaker for each panel, followed by discussion among the five or six panel members.

Panels represented on the program were:

1. "Motion Pictures—How to Put Them Together with Special References to Television." Larry Sherwood, Calvin Company, Kansas City, Mo.

Panel: H. J. Malsberger, chairman, Southern Pulpwood Conservation Association, Atlanta, Ga.; Hart S. Cowperthwait, Federal Communications Commission, Washington, D.C.; Herrin F. Culver, Visual Information Section, Soil Conservation Service, Washington, D.C.; Clint Davis, Division of Information and Education, U.S. Forest Service, Washington, D.C.; Lynn Poole, Director of Public Relations, Johns Hopkins University, Baltimore, Md.

2. "Visual Aids—How to Make and Use Them." James McPherson, Department of Audio- Visual Instruction, National Education Association, Washington, D.C.

Panel: Arthur K. Roberts, chairman, West Coast Lumbermen's Association, Portland, Ore.; James C. McCellan, American Forest Products Industries, Washington, D.C.; J. Howard Mendenhall, Brandywine Valley Association, West Chester, Pa.; T. D. Stevens, Department of Forestry, Michigan State College, East Lansing, Mich.; J. O. Artman, Division of Forestry, Tennessee Valley Authority, Norris, Tenn.

3. "The Editor Views Your News." Pieter W. Fosburg, New York State Conservation Department, Albany, N. Y.

Panel: Edwin R. Butler, chairman, American Forest Products Industries, Washington, D.C.; Frank A. Connolly, U.S. Forest Service, Philadelphia, Pa.; Albert G. Hall, editor, JOURNAL OF FORESTRY, Washington, D.C.; Michael Hudoba, *Sports Afield*, Washington, D.C.; George Vitas, U.S. Forest Service, Marion, N. C.; and Tom Wallace,

Louisville Times, Louisville, Ky.

4. "Radio Interviewing in Program Building." Thomas J. Page, formerly agricultural director of Station WNBC, Radio City, New York, N. Y.

Panel: William W. Bergoffen, chairman, Division of Information and Education, U.S. Forest Service, Washington, D.C.; A. R. Bond, Maryland Department of State Forests and Parks, Annapolis, Md.; Glen R. Durrell, Department of Forestry, Oklahoma A & M College, Stillwater, Okla.; Kenneth M. Gapen, Office of Informaiton, U.S. Department of Agriculture, Washington, D.C.

5. "Planning a Human (Public) Relations Program." Albert Arnst, Department of Public Information, Weyerhaeuser Timber Company, Tacoma, Wash.

Panel: W. R. Hine, chairman, U.S. Forest Service, Atlanta, Ga.; B. E. Allen, Union Bag & Paper Corp., Savannah, Ga.; C. S. Herr, Brown Company, Berlin, N. H.; John P. Shea, Extension Service, U.S. Department of Agriculture, Washington, D. C.; Margate S. Kienast, Division of Information and Education, U.S. Forest Service, Washington, D.C.; DeWitt Nelson, State Division of Forestry, Sacramento, Calif.

During the noon hour, 42 guests attended a special luncheon program planned by the Division, which featured a talk on "Public Relations at the Tree Roots" by Marlin H. Bruner, Extension Division, E. I. du Pont de Nemours & Company, Clemson, S. C.

The report of the nominating committee, consisting of S. L. Frost, Robert W. Shaw, and John C. Kuhns, was read and the following committee nominees unanimously elected:

Chairman; J. H. Kitchens, Jr., Louisiana Forestry Commission, Box 1269, Baton Rouge, La.

Vice chairman; Albert Arnst, Weyerhaeuser Timber Company, P. O. Box 1645, Tacoma, Wash.

Secretary; J. N. Hessel, U.S. Forest Service, Ogden, Utah.

With retiring Chairman Floyd E. Carlson of New York State University, College of Forestry, this group comprises the executive committee of the Division.

Mr. Kitchens opened a discussion on the need for a Forestry Educational Congress to be sponsored by the Society of American Foresters. He proposed that at a national meeting representatives of all agencies, associations, and private companies publishing educational material or releasing movies on forestry subject matter present a report of their past, current, and planned projects. A committee would then study these reports and attempt to work out a unified program which would avoid present duplication and coordinate the forestry messages embodied in published or other material.

The following motion, made by S. L. Frost, was passed by the Division:

"That the chairman of the Division of Public Relations appoint a committee to explore and plan the possibilities for holding a Public Relations Congress or Conference, to be held on a national level, for the purpose of coordinating efforts in forestry educational work. That this committee submit its report to the Division of Public Relations at the next annual meeting of the Society of American Foresters."

The following resolution was adopted by the Division, for transmittal to the Council:

"*Whereas*, the science of public relations is increasing in importance to the nation's industrial economy, and

"*Whereas*, the forestry profession is peculiarly in need of more knowledge regarding the science of public relations, and

"*Whereas*, such information on techniques, methods and case examples would be valuable to the profession of forestry through inclusion in the JOURNAL OF FORESTRY,

"Therefore, we recommend to the Council of the Society of American Foresters that an Associate Editor of Public Relations be appointed to the editorial advisory committee of the JOURNAL OF FORESTRY."

Albert Arnst, chairman of a special committee appointed at the last annual Society meeting to study forestry public relations, submitted a progress report, which will be presented as a final report after submission to other committee members, consisting of Charles S. Cowan, William S. Swingler, Albert Weisendanger, James C. McClellan, and Charles Tebbe. In this report, the committee listed a series of basic forestry facts upon which all foresters could reach agreement and recommended regional seminars, sponsored by the Society, for drawing together all writers and public relations men to arrive at mutual objectives in disseminating forestry public information material. The report also listed ways in which Society members could become more effective in acting as public relations representatives.

The Division adjourned its business session at 5:20 p.m., with a vote of thanks for all who participated in the program.

ALBERT ARNST, *Secretary*.

Meeting of Division of Range Management

In his absence, Chairman Edward P. Cliff requested Walt L. Dutton to act as chairman for the annual meeting of the Division of Range Management, held on December 15 in Washington, D.C. Elbert H. Reid was appointed acting secretary.

About seventy members of the Society attended the sessions. Most of those in attendance participated in the discussions of the papers presented, making a lively and interesting meeting.

The theme of the morning session was "Half a Century of Progress in Range Management and a Look Ahead." The first paper, "Development of Range Management Philosophy and Its Relationship to Land Use," was presented by W. R. Chapline. This was followed by an extended discussion led by C. L. Forsling. The second paper, "Range Management Education," by Arthur W. Sampson, was read in Mr. Sampson's absence by Dean L. M. Turner. A good discussion of Sampson's paper was then led by Dean J. Lee Deen.

The afternoon session was a panel discussion of "New Frontiers—A Look Ahead," led by Raymond Price. Six papers were read: one on "Extension of the Range Front to the South and Southeast;" another on "Opportunities and Needs in Range Management;" and four on "New Trends" in (1) "Standards of Range Use," (2) "Range Soils," (3) "Range Reseeding," and (4) "Control of Noxious Weeds." C. Kenneth Pearse, Richard M. Hurd, Kenneth W. Parker, and Vernon A. Young, who participated as the panel, did an able job of discussing the many questions and comments presented from the floor.

The gist of both sessions seemed to be that range management has come a long way in fifty years but much remains to be accomplished, both in research and application. Many apparently feel that the coming years will be easier than the past in getting general concepts of range management before the range users, but that a big job remains in getting range management actually into practice on a wide front.

A short business meeting was held. It was decided that the Chairman of

the Division would arrange with the Executive Secretary of the Society for future election of officers of the Division by ballot.

ELBERT H. REID,
Acting Secretary.

Meeting of Division of Silviculture

The meeting was called to order at 8 p.m., December 13, in the Mayflower Hotel, Washington, D.C. by Chairman T. W. Daniel.

The Division proceeded at once to the reading of papers, seven topics being discussed at a rather crowded session—both as to papers and attendance.

The nature of adequate training in silviculture was first discussed by a panel of speakers, with additional comments from the floor. No specific recommendations resulted, however.

Following the discussion a paper by J. R. Curry gave an historical resumé of silvicultural practices in the Adirondacks. W. S. Bromley discussed methods of reducing the cost of timber marking largely through tallying the "cut" and "leave" by a separate 5 to 10 percent cruise of the marked area.

The effects of herbicides in the forest was discussed by L. E. Chaiken, and in the nursery by F. M. Cossitt, both papers being followed by many questions.

H. I. Baldwin presented a brief announcement of the work on forest pests that has been conducted by the New England Section.

The meeting adjourned at 10:30 p.m. to reconvene at 9 a.m., December 15. The meeting at that time was called to order by Chairman Daniel and Chairman R. W. Marquis of the Division of Forest Economics jointly. At this session the interrelations of economics and silviculture were discussed in general terms by L. I. Barrett and in terms of specific application by W. A. Duerr.

Following this paper a panel of three men—E. B. Moore, N. T. Barron, and W. M. Zillgitt discussed the application of economics to specific problems in different parts of the east.

The afternoon session of the Division of Silviculture alone was called to order by Chairman Daniel at 2 p.m. The program included six papers devoted mainly to current problems of eastern silviculture.

An illustrated talk by W. C. Bramble covered the reforestation of strip-mined coal lands.

Pruning was discussed by D. B. Cook, who has found it highly advantageous.

Fifty years of planting on the Clark Forest in Indiana was reported by Daniel Den Uyl, who pointed out the irregular and generally poor success of hardwoods planted on old fields.

The wise management of yellow poplar was outlined by T. Holsoe.

A highly technical study to determine some sort of practical guide for determining density of stocking in the central hardwoods was presented by W. S. Minckler, who showed that apparently "fully stocked" stands are often actually overstocked.

The closing paper of the session, by J. F. Shanklin discussed the philosophy and values of natural area reservations.

Owing to limited time the business meeting of the Division was short. Philip Briegleb presented an abstract of a report of the subcommittee on stocking which was received and placed on file. J. F. Shanklin presented a report of the Committee on Natural Areas which was not read as it paralleled Mr. Shanklin's paper which had just been given. The report was received and filed. No other reports of standing committees were presented.

Chairman Daniel announced the acceptance of the amended bylaws of the Division and the results of the election of officers:

Vice chairman, R. K. LeBarron.
Secretary, R. H. Westveld.

Chairman Daniel automatically passed to the post of past chairman, and Secretary F. S. Baker moved to the position of chairman. The meeting adjourned at 5 p.m.

F. S. BAKER,
Secretary.

Meeting of Division of Watershed Management

The inaugural meeting of the Division of Watershed Management was called to order in Washington, D.C. at 9:00 a.m., December 15, by Vice Chairman E. G. Dunford, acting for Chairman Reed Bailey, who was unable to be present because of illness. An attendance of 85 persons indicated an even wider interest in water resources than had been anticipated.

Raphael Zon, in keeping with the Society's Golden Anniversary theme, presented a historical review of "The First Fifty Years." He stressed the gradual development of a national consciousness for integrated watershed management as a joint function of all resource conservation agencies.

Paul J. Kramer's paper, "Plant and Soil Water Relations on the Watershed," brought out a lively discussion. In his presentation, Dr. Kramer first reviewed what is known about plant and water relations, and he then discussed research methods and their relative value in solving watershed problems.

A paper by C. L. Forsling on current problems in "Range and Watershed Management in the Rio Grande" emphasized ecological aspects. Of particular interest was his report on the excessive transpiration by invading vegetation species on stream deposits on the flood plain of smaller tributary drainages above the Elephant Butte Reservoir.

The general subject of municipal and industrial watershed management was outlined by C. R. Hursh under the title of "Watershed Aspects of the New York Water Supply Problem."

"Problems for Watershed Soils Research" was the title of a discussion by M. D. Hoover. Emphasis was placed on the geomorphological approach to difficult watershed problems.

Watershed planning activities by national and state groups were discussed by Leland Olds of the Water Resources Policy Commission, Joseph F. Kaylor, State Forester of Maryland, and H. G. Wilm of the Flood Control Survey.

E. N. Munns concluded the program with a prospectus of "The Next Fifty Years." He outlined a constructive program for the future based on adequate surveys coupled with public management and control for watershed restoration and maintenance. The need for obtaining research information of the processes that govern water control was emphasized, as was also the need for the training of watershed managers.

In the discussion of Mr. Munns' paper, Ralph Hosmer called attention of the group to the definite watershed management program set up in 1904 for the Forest Reserves of the islands of Hawaii. About 75 percent of these reserves are strict protection forests for mountain slopes receiving 200-500 inches of rainfall. This program has now been followed with increasing efficiency for 46 years.

At the beginning of the meeting, a temporary committee was appointed to draw up a preliminary statement of objectives for the Division. This com-

mittee, consisting of Gordon Salmond, chairman, H. G. Wilm, and Howard Lull, read the following statement at the close of the meeting and suggested appointment of a larger group to draw up a final set of objectives during the coming year.

Preliminary Statement of Objectives of Division of Watershed Management

Through committee activities, personal contact, and publication within the Society of American Foresters:

1. To stimulate an appreciation and recognition of watershed management problems by land managers in general and especially in the S.A.F.

2. To promote application of watershed management techniques.

3. To work separately and with other Divisions of the Society in preparation of glossaries and bibliographies in which watershed management is concerned.

4. To urge agencies of the government, corporations, and others who hire foresters to require a background of training in watershed management.

5. To encourage educational institutions to establish training in watershed management as a part of their regular curricula for training foresters.

6. To encourage expanded research in watershed management and make suggestions for guidance.

Standing committees for the following year are as follows:

Objectives Committee

Gordon R. Salmond, U.S. Forest Service, Washington, D.C., chairman. Howard W. Lull, U.S. Forest Service, Washington, D.C. Clarence Richen, Crown Zellerbach Paper Co., Portland, Ore. Wilson B. Sayers, State Forester, Charleston, W. Va. Earl L. Stone, Cornell University, Ithaca, N. Y.

Nominations Committee

A. R. Croft, U.S. Forest Service, Ogden, Utah, chairman. W. H. Cummings, Tennessee Valley Authority, Fountain City, Tenn. Harvey R. Frantz, INCODEL, Bethlehem, Pa. Allen E. Thompson, Seattle City Watershed, Cedar Falls, Wash.

Program Committee

Reed W. Bailey, U.S. Forest Service, Ogden, Utah, chairman. W. R. Boggess, University of Illinois, Robbs, Ill. B. C. Goodell, Johns Hopkins University, Baltimore, Md. Emmett B. Hurst, Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis. Walter L. Schipull, U.S. Forest Service, Washington, D.C.

CHARLES R. HURSH,
Secretary.

Council Accredits 25 Forestry Schools

Three additional forestry schools were accredited by the Council at its business session during the Golden Anniversary Meeting. These are Alabama Polytechnic Institute, University of Massachusetts, and the University of Missouri.

The following institutions have been accredited for professional forestry instruction by the Council of the Society of American Foresters, effective December 13, 1950.

Alabama Polytechnic Institute, Department of Forestry, Auburn, Alabama. University of California, School of Forestry, Berkeley 4, California. Colorado A & M College, School of Forestry and Range Management, Fort Collins, Colorado. Duke University School of Forestry, Durham, N. Carolina (Grad.). University of Florida, School of Forestry, Gainesville, Florida. University of Georgia, School of Forestry, Athens, Georgia. University of Idaho, School of Forestry, Moscow, Idaho. Iowa State College, Department of Forestry, Ames, Iowa. Louisiana State University, School of Forestry, University Station, Baton Rouge 3, Louisiana. University of Maine, Department of Forestry, Orono, Maine. University of Massachussets, Department of Forestry and Wildlife Management, Amherst, Massachusetts. Michigan State College, Division of Conservation, Department of Forestry, East Lansing, Michigan. University of Michigan, School of Natural Resources, Ann Arbor, Michigan. University of Minnesota, School of Forestry, Saint Paul 1, Minnesota. University of Missouri, Department of Forestry, Columbia, Missouri. Montana State University, School of Forestry, Missoula, Montana. State University of New York, College of Forestry, Syracuse 10, New York. North Carolina State College, School of Forestry, Raleigh, North Carolina. Oregon State College, School of Forestry, Corvallis, Oregon. Pennsylvania State College, Department of Forestry, State College, Pennsylvania. Purdue University, Department of Forestry, Lafayette, Indiana. Utah State Agricultural College, School of Forest, Range and Wildlife Management, Logan, Utah. University of Washington, College of Forestry, Seattle 5, Washington. West Virginia University, Division of Forestry, Morgantown, West Virginia. Yale University, School of Forestry, New Haven 11, Connecticut (Graduate).

Approved Curricula for Membership in S.A.F.

Not all graduates of these institutions, however, are eligible for membership in the Society of American Foresters immediately upon graduation.

Only those graduates are eligible who have completed curricula containing the five required professional forestry courses, as recommended by the Committee on Accrediting and approved by the Council. These five required courses are silviculture, protection, management, economics, and utilization.

The amount of formal instruction required in each of the five courses, and the amount of instruction in the sciences basic to each field, were approved by the Council at its meeting in October 1949, and published in the Report of the Committee on Accrediting Schools of Forestry in the JOURNAL OF FORESTRY for December 1949. (See pages 1008-1009, particualrly "Statement on Eligibility to Membership.")

At the time the schools of forestry were being examined during 1950 for purposes of reaccrediting, the Committee on Accrediting, at the request of the Council, examined the curricula of all schools. The reason for the examination was to determine which curricula in the accredited schools qualified their graduates for Junior Membership in the Society immediately upon graduation.

The Committee on Accrediting submitted the report which follows to the Council at the Society meeting of December 13-16, 1950. Ten members of the Council (a quorum) were present and unanimously approved the Committee's recommendations.

As of January 1, 1951, the following qualifications will determine the eligibility to Junior Membership of graduates of these institutions.

Washington, D.C.
December 14, 1950

The Council
Society of American Foresters
Washington, D.C.

Gentlemen:

The Committee on Accrediting was asked by the Council to act, in effect, as a Committee on Eligibility for Membership. In accordance with this request the Committee has examined the curricula of all schools with respect to Council policy as stated in the December 1949 issue of the JOURNAL (pages 1008-1009).

The Committee has attempted to ex-

ercise sympathetic judgment in its examination of curricula. The recommendations of the Committee as to specialized curricula for those institutions recommended to the Council for accredited status are enclosed herewith.

Respectfully yours,
Committee on Accrediting
MYRON KRUEGER, *Chairman.*

Committee on Accrediting Report on Specialized Curricula of Accredited Schools

Alabama Polytechnic Institute
All curricula qualify.

University of California
All curricula qualify.

Colorado A & M College
Curricula in Grazing, Game, Recreation, and Fish Management do *not* qualify.

Duke University
All curricula qualify.

University of Florida
All curricula qualify.

University of Georgia
Only one curriculum. It qualifies.

University of Idaho
Curricula in Range Management and Forest Utilization do *not* qualify.

Iowa State College
No specialized curricula. (Qualifies.)

Louisiana State University
Curriculum in Wood Technology does *not* quailfy.

University of Maine
All curricula qualify.

University of Massachusetts
Curriculum in Wildlife does *not* qualify.

Michigan State College
Curriculum in Forestry qualifies. All others do *not.*

University of Michigan
Curriculum in Forestry qualifies.
Curricula in Wood Technology, Fisheries, Wildlife, and Conservation do *not.*

University of Minnesota
Curricula in Forestry (Forestry, Range, and Wildlife options) qualify.
Others do *not.*

University of Missouri
Only *one* curriculum at present. It qualifies.

Montana State University
All curricula qualify.

New York State College of Forestry
Curriculum in Forest Management is *only one* which *qualifies.*

North Carolina State College
Curricula in Wood Technology and Lumber Products do *not* qualify.

Oregon State College
Curricula in Forest Management and Forest Engineering qualify.
Both options of the curriculum in Forest Products do *not* qualify.

Pennsylvania State College
Curriculum in General Forestry qualifies.
Curriculum in Wood Utilization does *not* qualify.

Purdue University
Curriculum in Forest Production, *only, qualifies.*

Utah State Agricultural College
Curricula in Range Management and Wildlife Management do *not* qualify.

University of Washington
Curriculum in Forest Products does *not* qualify.

West Virginia University
All curricula qualify.

Yale University
The curriculum in Wood Technology-Utilization is the only one in question. There are occasional graduates of this curriculum, who do not qualify. Dean Garratt should be asked to certify all graduates of this curriculum individually.

Queries and Quotes

Excerpts from some of the many letters, telegrams, and radiograms received by the Society of American Foresters upon the occasion of its Golden Anniversary Meeting are published below:

"May I, on behalf of the Governing Council of the Empire Forestry Association, offer you and the Society of American Foresters our hearty greetings and congratulations on the occasion of the fiftieth anniversary of the foundation of the Society. We view with admiration the rapid growth of your Society, and the very high standard set by your JOURNAL OF FORESTRY, and feel sure that the great progress made in forestry in the United States owes much to its influence.

"With all good wishes for a very successful Golden Anniversary Meeting, and for your Society's continued progress in the future."—*H. E. The Rt. Hon. The Earl of Athlone, President, Empire Forestry Association.*

"CONGRATULATIONS GOLDEN JUBILEE WISHING CONTINUOUS MILITANT FORESTRY LEADERSHIP."—*SOCIETY FILIPINO FORESTERS*

"The Canadian Forestry Association through its Board and Officers take pleasure in congratulating the Society of American Foresters on its splendid achievements during the past 50 years. The united efforts of the professional foresters have produced most of the improvements in forest and natural resource conservation during that period."—*J. L. Van Camp, General Manager, Canadian Forestry Association.*

"CORDIAL GREETING TO THE GOLDEN ANNIVERSARY MEETING AND SUCCESSFUL CONTINUATION FOR THE GREAT WORK.—*YRJO ILVESSALO, FINNISH FOREST RESEARCH INSTITUTE*

"HEARTIEST CONGRATULATIONS TO YOUR GOLDEN ANNIVERSARY FROM THE YOUNGEST FOREST ORGANIZATION."—*GOOR, SOCIETY OF ISRAEL FORESTERS*

"May I take this opportunity to send to you the Association's greetings and my best wishes for a most successful Golden Anniversary of the Society of American Foresters."—*Howard A. Meyerhoff, Administrative Secretary, American Association for the Advancement of Science.*

"I am greatly interested in the important work of the Society and in all aspects of forestry and I am hoping to attend the meeting."—*Douglas Whitaker, Chairman, National Research Council.*

"The Society of American Foresters, now fifty years old, has been of inestimable value in assuring plentiful forest resources for America. Its influence and prestige have been felt in all spheres of our economy. Its objectives have been unselfishly pursued to attain the greatest good for all of our citizens.

"It is with pardonable pride that I say that about 3,000 members of the Society are employed by the forest products industries—more than half of this number in the field of forest management. The lumber industry employs a large proportion of these members and they are exerting tremendous influence in sustaining and developing the forest resources upon which the life of our industry depends.

"Please accept my heartiest congratulations to the Society of American Foresters, and my best wishes for another fifty years of notable progress."—*Corydon Wagner, President, National Lumber Manufacturers Association.*

"Having attended some of your meetings in the past, I know that they are well worthwhile."—*Shaler E. Aldous, Secretary, The Wildlife Society.*

"The prospectus of the meeting seems to be most worthwhile and it is quite evident that a very significant milestone in the progress of forestry in this country has been reached when the Society of professional foresters celebrates a 50th anniversary.

"Please accept my best wishes for a most successful meeting and congratulations to you and your organization for all of its achievements in its first fifty years."—*A. C. Spurr, President, The American Forestry Association.*

"The Society, its officers and membership are to be congratulated on reaching its fiftieth or Golden Anniversary, a viril and active organization—a constructive force in the field of conservation and wise use of our renewable natural resources. The Society has helped to maintain a high standard of practice and ethics in professional forestry these many years, and will, I am sure, achieve greater success in the years to come."—*Harry E. Radcliffe, Vice President, American Nature Association.*

"I certainly will wish to pay my respects to the Society that has contributed so much to the development of all phases of forestry in this country thus fulfilling its obligation to the public." *Richard P. White, Executive Secretary, American Association of Nurserymen.*

"CONGRATULATIONS ON THE GOLDEN ANNIVERSARY MEETING OF THE SOCIETY OF AMERICAN FORESTERS. YOUR RECORD OF ACHIEVEMENT OUTSTANDING. SINCERE WISHES FOR YOUR CONTINUED SUCCESS."—*HARRY H. STOOPS, PRESIDENT, AMERICAN RECREATION SOCIETY.*

"You have my best wishes for a successful meeting and the Society has our congratulations on having reached this important anniversary."—*Mrs. E. E. Byerrum, Chairman, Committee on Conservation of Natural Resources, General Federation of Women's Clubs.*

"I would like to extend my heartiest congratulations to the Society in reaching a unique objective in the conservation world. It will be many years before many other groups could make such a brilliant record even though inspired by the leadership of the Society of American Foresters."—*Michael Hudoba, Washington Editor, Sports Afield.*

"I must thank you for your very kind invitation to attend the 50th anniversary meeting of the Society of American Foresters.

"Unfortunately I am already committed to attend the third session of FAO's Forestry and Forest Products Commission for Latin America, which is meeting, simultaneously with your gathering, at Santiago, Chile. Otherwise I would have considered it a great privilege to participate in your Golden Anniversary celebrations, not only because of the significant achievements that such an event marks but also because of the special opportunity to renew my contacts with American foresters and to meet at length with all my colleagues on this side of the Atlantic."—*Marcel Leloup, Director, Division of Forestry and Forest Products, Food and Agriculture Organization of the United Nations.*

"You have my most sincere wishes for a successful program again this year."—*Charles F. Brannon, Secretary, Department of Agriculture.*

"I would like very much to have you extend to the membership of the Society of American Foresters my sincere wishes for a most successful semi-centennial meeting."—*Oscar L. Chapman, Secretary, Department of the Interior.*

"On behalf of the Forest Service of Canada, I want to extend to the Society our hearty congratulations on fifty years of real accomplishment in the field of forestry in the U.S.A., and express to you the hope that your meeting will be attended with complete success."—*D. A. Macdonald, Director, Forestry Branch, Department of Resources and Development of Canada.*

"I write to convey the most cordial congratulations from the staff of the Imperial Forestry Institute of Oxford on the occasion of the fiftieth anniversary of the Society. I should like to add my personal good wishes as one who has had the privilege of attending some of the Society's meetings as much as 35 years ago and the honour of being elected an Honorary Member in 1944. The contribution that the Society has made to the advancement of forestry both in professional circles and among the general public is immense. Foresters throughout the world know that to keep abreast of the times in their chosen profession they must keep in touch with the activities of the Society, as they can so largely do through the excellent JOURNAL it issues. The Society has great achievements behind it, but there is still almost unlimited scope for further work and we wish the Society even greater success in the next half century."— *H. G. Champion, Professor of Forestry, Department of Forestry, Imperial Forestry Institute, University of Oxford.*

"I wish to congratulate you on the Golden Anniversary of your Society. American forestry during the past half century has been a guiding factor in the practice of forestry in my country. Quite a number of us Filipino foresters have been trained in American universities during this period and some of them are members of your Society.

"I hope that the life and service of the Society will long endure, not only for the good of this and future generations of Americans, but also for the benefit of forestry in other countries as well."—*Florencio Tamesis, Director of Forestry, Bureau of Forestry, Republic of the Philippines.*

"SEND OUR GREETINGS FROM FARAWAY CHILE."—*KOTOK, BOSWORTH, FIVAZ, WADSWORTH, GILCHRIST, VALENZUELA.*

"BEST WISHES FOR FIFTIETH ANNIVERSARY. REGRETS NOT BEING WITH YOU."—*KIRCHER, DONALDSON, DEXTER, DUMMINGS, INESON, REICHARD.*

Candidates for Membership

Candidates for membership whose applications were received in the Society office prior to January 1, 1951 are listed below. Names, positions, addresses, and educations are given.

Action regarding the eligibility of these candidates will be taken by the Council as of March 1, 1951. Comments, protests, or important information regarding the qualifications for membership of candidates listed are invited from present voting members. All such communications are kept strictly confidential, being used only by the Council in taking final action on applications. Correspondence should be received in the Society office prior to March 1, 1951.

The names of those candidates who are elected will be published in the Society Affairs department of the April 1951 JOURNAL OF FORESTRY. The names of those who signify their acceptance of election will be published in subsequent issues of the JOURNAL.

Allegheny Section

Junior Grade

Banks, W. G., Forester, N. E. Forest Exp. Sta., Upper Darby, Pa.; N. Y. State, B.S.F., 1932.

Eastman, J. T., Forest Custodian, Panther State Forest, W. Va.; W. Va. Univ., B.S.F., 1950.

Whipkey, R. Z., 109 N. Diamond St., Mount Pleasant, Pa.; Pa. State, B.S.F., 1950.

Member Grade

Atkinson, S. G., Consulting Forester, Huntingdon Valley, Pa.; Pa. State, B.S.F., 1941; Yale, M. F., 1942. (Junior, 1945.)

Bamford, G. T., Asst. Forester, Dept. of Cons., and Economic Dev., Trenton, N. J.; Pa. State, B.S.F., 1940; Yale, M. F., 1950. (Junior, 1947.)

Beam, R. C., Forester, Pa. Dept. of Forests and Waters, Johnstown, Pa.; Pa. State, B.S.F., 1941. (Junior, 1943.)

Burgtorf, C. E., Foreman, U.S.F.S., Marlinton, W. Va.; Univ. of Mich., B.S.F., 1935. (Junior, 1945.)

Byers, J. B., Asst. Prof., W. Va. Univ., Morgantown, W. Va.; W. Va. Univ., B.S.F., 1939. (Junior, 1946.)

Carpenter, W. W., Forester, Dept. of Forests and Waters, Harrisburg, Pa.; Pa. State, B.S.F., 1939. (Junior, 1943.)

Custer, S. A., U. S. Army, 524 Columbia Ave., Lansdale, Pa.; Pa. State, B.S.F., 1942. (Junior, 1946.)

Dugan, R. F., Asst. Prof., W. Va. Univ., Morgantown, W. Va.; Univ. of Mich., B.S.F., 1941. (Junior, 1946.)

Hall, C. R., Dist. Forester, Harper, W. Va.; W. Va. Univ., B.S.F., 1939. (Junior, 1949.)

Kemper, R. C., Forester, New River and Pocahontas Cons. Coal Co., Fayetteville, W. Va.; W. Va. Univ., B.S.F., 1941. (Junior, 1946.)

Melton, R. E., Instr., Pa. State Forest School, Mont Alto, Pa.; Univ. of Mich., B.S.F., 1947; M.F., 1947. (Junior, 1948.)

Myers, C. A., Jr., Instr., W. Va. Univ., Morgantown, W. Va.; Colo. A. & M., B.S.F., 1942; M.F., 1947. (Junior, 1948.)

Osterhout, E. J., Wood Procurement, Baker Wood Preserving Co., Pittsburgh, Pa.; Pa. State, B.S.F., 1940. (Junior, 1948.)
Smith, G. E., Forester, U.S.D.A., Woodbury, N. J.; Pa. State, B.S.F., 1939. (Junior, 1947.)

Appalachian Section

Junior Grade

Anderson, J. F., Moore, S. C.; Univ. of Ga., B.S.F., 1949.
Durand, M. N., Forester, U. S. Gypsum Co., Altavista, Va.; Pa. State, B.S.F., 1950.
Evans, J. T., Sylva, N. C.; N. C. State, B.S.F., 1950.
Nicholson, J. C., Field Repre., W. Va. Pulp and Paper Co., Charleston, S. C.; La. State, B.S.F., 1939.
Richardson, J. W., Forest Tech., Int. Paper Co., Georgetown, S. C.; A. P. I., B.S., (Forestry), 1949.

Member Grade

Chamblee, G. V., Forester, Newport News Waterworks Comm., Denbigh, Va.; N. C. State, B.S.F., 1941. (Junior, 1948.)
Fortgang, D., Dist. Forester, Int. Paper Co., Georgetown, S. C.; N. Y. State, B.S.F., 1941. (Junior, 1946.)
Goodwin, O. C., Jr., Farm Forester, Dept. of Cons., Lexington, N. C.; Duke, M. F., 1947. (Junior, 1947.)
Griffith, B. T., Cons. Forester, Int. Paper Co., Dunn, N. C.; N. C. State, B.S.F., 1941. (Junior, 1947.)
Herlevich, J., Dist. Forester, N. C. Dept. of Cons., and Dev., Whiteville, N. C.; La. State, B.S.F., 1941. (Junior, 1946.)
Hubbard, J. B., Protection Forester, N. C. Div. of Forestry, Raleigh, N. C.; N. C. State, B.S.F., 1938. (Junior, 1947.)
Jaenicke, R. W., Cons. Forester, Int. Paper Co., Camden, S. C.; N. Y. State, B.S.F., 1939; M.F., 1941. (Junior, 1946.)
Johnson, R. S., Forester, McNair Investment Co., Laurinburg, N. C.; N. C. State, B.S.F., 1940. (Junior, 1948.)
Jollay, T. M., Tbr. Cruiser, W. Va. Pulp and Paper Co., Summerville, S. C.; N. C. State, B.S.F., 1939. (Junior, 1946.)
Larson, R. W., Forester, North Manitou Island Assoc., Asheville, N. C.; Mich. State, B.S.F., 1941; Harvard Univ., M.F., 1942. (Junior, 1946.)
Marshburn, W. J., Jr., Farm Forester, N. C. Dept. of Cons., and Dev., Rockingham, N. C.; N. C. State, B.S.F., 1938. (Junior, 1950.)
Rettberg, H. C., Forester, Poinsett Lbr. Co., Pickens, S. C. (Aff., 1945, Junior, 1946.)
Shadduck, A. M., Tbr. Mgmt. Asst., U.S.F.S., Columbia, S. C.; Oregon State, (3 yrs.). (Junior, 42R46.)
Terry, H. L., Dist. Forester, N. C. Dept. of Cons., and Dev., Rocky Mt., N. C.; N. C. State, B.S.F., 1943. (Junior, 1947.)
Wolcott, R. W., Dist. Wood Procurement Supt., Int. Paper Co., Georgetown, S. C.; Colo. A. & M., B.S.F., 1937. (Junior, 41R46.)

Central States Section

Junior Grade

Bacon, B. C., Jr., 2409 Shrader Ave., New Albany, Ind.; Mich. State, B.S.A., 1950
Conklin, L. D., Tree Surgeon, J. L. Korniski, Saginaw, Mich.; Mich. State, B.S.F., 1950.
Hauer, J. W., 212 Lovell St., Elgin, Ill.; Mich. State, B.S.F., 1950.
Jones, T. R., City Forester, Parks and Recreation Comm., Youngstown, Ohio; Mich. State, B.S.F., 1950.
Paull, J. T., Forester, Escanaba Paper Co., Escanaba, Mich.; Univ. of Mich., B.S.F., 1950.
Stokes, R. E., 312 S. Arth St., Fremont, Ohio; Mich. State, B.S.F., 1950.
Williams, W. K., 515 W. Main St., Midland, Mich.; Univ. of Mich., B.S.F., 1950.

Associate Grade

Andrew, M. M., Field Scientist, Div. of Forestry, Indianapolis, Ind.; Indiana Univ., B. A., (Sociology and Psychology), 1929.

Columbia River Section

Junior Grade

Abraham, D. B., Forester, U.S.F.S., McKenzie Bridge, Oreg.; Oregon State, B.S.F., 1950.
Dugan, C. M., Head Chainman, Weyerhaeuser Tbr. Co., Coos Bay, Oreg.; Mont. State, B.S.F., 1950.
Grubb, J. E., Fire Control Aide, U.S.F.S., Prineville, Oreg.; Colo. A. & M., B.S.F., 1950.
Jennings, W., Jr., Forestry Aide, U.S.F.S., Disston, Oreg.; Oregon State, B.S.F., 1950.
Miller, J. G., Water Sealer, Weyerhaeuser Tbr. Co., North Bend, Oreg.; Mont. State, B.S.F., 1950.
Sorseth, A. L., Tbr. Mgmt. Asst., U.S.F.S., Detroit, Oreg.; Oregon State, B.S.F., 1948.
Willey, R. M., Tech. Asst., Medford Corp., Butte Falls, Oreg.; Mont. State, B.S.F., 1950.

Member Grade

Bronson, V. D., Asst. Chief Forester, Willamette Valley Tree Farms, Eugene, Oreg.; Oregon State, B.S.F., 1942. (Junior, 1946.)
Elmgren, R. C., Forester, Tbr. Service Co., Sweethome, Oreg.; Oregon State, B.S.F., 1938; Univ. of Mich., M.F., 1939. (Junior, 1946.)
Goodmonson, P. N., Marketing Spec., Coop. Ext. Service, Corvallis, Oreg.; Univ. of Minn., B.S.F., 1943. (Junior, 1946.)
Hummel, D. L., Forestry Staff, Weyerhaeuser Tbr. Co., Klamath Falls, Oreg.; Univ. of Mich., B.S.F., 1942. (Junior, 1948.)
Lindsay, R. C., Resident Forester, Crown Zellerbach Corp., Vernonia, Oreg.; Oregon State, B.S.F., 1946. (Junior, 1947.)
Murnen, E. J., Jr., Forester, West Coast Plywood Co., Sutherlin, Oreg.; Univ. of Wash., B.S.F., 1941. (Junior, 1947.)
Olin, D. D., Tbr. Mgmt. Asst., U.S.F.S., Oakridge, Oreg.; Univ. of Wash., B.S.F., 1937. (Junior, 1946.)
Snodgrass, J. D., Instr., Oregon State College, Corvallis, Oreg.; Univ. of Mich., B.S.W.T., 1943. (Junior, 1947.)
Tippner, E., Compassman, Taylor Bros., Morton, Wash.; Oregon State, B.S.L.E., 1940. (Junior, 1947.)
Vance, P. N., Wood Supply Supv., Fir-Tex Insulating Board Co., St. Helens, Oreg.; Univ. of Wash., B.S.F., 1938. (Junior, 1949.)

Gulf States Section

Junior Grade

Cameron, D. C., Area Forester, Miss. Forestry Comm., Jackson, Miss.; La. State, B.S.F., 1950.
Gascon, R. J., Jr., P. O. Box 62, Plaquemine, La.; La. State, B.S.F., 1950.
Lowery, D. P., Instr., Stephen F. Austin State College, Nacogdoches, Tex.; Mich. State, B.S.F., 1949; Duke Univ., M.F., 1950.

Member Grade

Lange, R. W., Dist. Forester, Int. Paper Co., Jena, La.; Colo. A. & M., B.S.F., 1939. (Junior, 1947.)
Miller, I. W., Forester, U.S.F.S., Oxford, Miss.; Univ. of Ga., B.S.F., 1932. (Junior, 34R47.)
Therrell, J. S., Ext. Forester, Miss. Ext. Service, State College, Miss.; Univ. of Mich., B.S.F., 1940. (Junior, 1946.)
Wright, G., Cons. Forester, Silsbee, Tex.; La. State, B.S.F., 1939. (Junior, 1941.)

Inland Empire Section

Junior Grade

Martin, J. W., 200 Euclid Ave., Sandpoint, Idaho; Oregon State, B.S.F., 1950.

Intermountain Section

Member Grade

Krause, P. A., Range Mgr., U. S. Indian Service, Ft. Duchesne, Utah; Mont. State, B.S.F., 1939. (Junior, 1946.)
McNaughton, F. H., Forester, Payette Nat'l. Forest, McCall, Idaho; Univ. of Idaho, B.S.F., 1942. (Junior, 1946.)
Roberts, A. M., Chief Fire Warden, Southern Idaho Tbr. Protective Assoc., Boise, Idaho. (Junior, 1945.)
Tucker, B. H., Forester, U.S.F.S., Cedar City, Utah; Utah State, B.S.F., 1936. (Junior, 1946.)

New England Section

Member Grade

Bourget, A. M., Prof., Laval Univ., Quebec, Can.; Laval Univ., B.S.A., 1919. (Junior, 1946.)
Brann, E. K., Forester, Prentiss and Carlisle Co., Inc., Bangor, Me.; Univ. of Me., B.S.F., 1940. (Junior, 1945.)
Cowan, F. W., Div. Mgr., St. Regis Paper Co., West Stewartstown, N. H.; Univ. of Me., B.S.F., 1941. (Junior, 1946.)
Murchison, G. H., Forester, Canadian Int. Paper Co., Trois Rivieres, Quebec, Can.; Univ. of Toronto, B.S.F., 1932. (Junior, 1945.)
Olmsted, N. W., Party Chief, Int. Paper Co., N. Y., N. Y.; Univ. of Me., B.S.F., 1946. (Junior, 1947.)
Stankiewicz, M. J., Chief of Control, Brown Co., Berlin, N. H.; Univ. of N. H., B.S.F., 1931. (Junior, 1944.)

New York Section

Junior Grade

Kovner, J. L., 3 Crawford St., Syracuse, N. Y.; Yale, B.S. (Math.), 1934; N. Y. State, M.F., 1949.

Member Grade

Love, D. V., Asst. Prof., Univ. of Toronto, Toronto, Can.; Univ. of N. B., B.S. (Forestry), 1941; Univ. of Mich., M.F., 1946. (Junior, 1946.)

Northern California Section

Junior Grade

Curry, W. L., Fire Control Aide, Plumas Nat'l. Forest, Quincy, Calif.; Univ. of

Calif., B.S.F., 1950.
Dunn, G. A., Checker, Hammond Lbr. Co., Samoa, Calif.; Univ. of Calif., B.S.F., 1950.
Jacobson, C. H., Clerk-dispatcher, U.S.F.S., Mt. Hebron, Calif.; Oregon State, B.S.F., 1950.
Lendman, F. N., Scaler, Fruit Growers Supply Co., Westwood, Calif.; Iowa State, B.S.F., 1950.

Member Grade

Burns, R., Forest Tech., State of Calif., Sacramento, Calif.; Univ. of Calif., B.S.F., 1947. (Junior, 1948.)
Larson, J. E., Forester, Bercut-Richards Lbr. Co., Sacramento, Calif.; Univ. of Minn., B.S.F., 1938. (Junior, 1946.)
Marshall, L. T., Logging Mgr., Dolly Varden Lbr. Co., Arcata, Calif.; Oregon State, B.S.F., 1941. (Junior, 1946.)
Merrill, A. H., Forester, Hammond Lbr. Co., Samoa, Calif.; Univ. of Calif., B.S.F., 1940. (Junior, 1948.)
Miller, H. B., Dist. Rgr., U.S.F.S., Covelo, Calif.; Stanford Univ., B.S., 1933; Univ. of Mich., M.F., 1936. (Junior, 1946.)
Roy, D. F., Forester, Calif. Forest and Range Exp. Sta., Berkeley, Calif.; Univ. of Calif., B.S.F., 1950. (Junior, 1947.)

Affiliate Grade

Clark, J. N., Asst. State Forest Rgr., State of Calif., Sacramento, Calif.
Hickle, R. C., Assoc. State Forest Rgr., State of Calif., Sacramento, Calif.; Davis College of Agric. (1 yr.).
Higgins, R. R., Assoc. State Forest Rgr., State of Calif., Fresno, Calif.
Jones, A. W., Jr., Asst. State Forest Rgr., State of Calif., Fresno, Calif.; Univ. of Calif. (1 yr.).
Rosar, J. F., Asst. State Forest Rgr., State of Calif., Mariposa, Calif.

Associate Grade

Wilsey, L., Pres., and Mgr., Blagen Lbr. Co., White Pines, Calif.

Ozark Section

Junior Grade

Paulsell, L. K., Resident Forester, Univ. of Mo., Columbia, Mo.; Univ. of Mo., B.S.F., 1949; M.S.F., 1950.

Member Grade

Burleigh, C. A., Forester, Crossett Lbr. Co., Crossett, Ark.; Univ. of N. H., B.S.F., 1941; Yale, M.F., 1947. (Junior, 1947.)
Danson, R. O., Supt., Mo. Cons. Comm., Licking, Mo.; Univ. of Minn., B.S.F., 1918. (Junior, 1945.)
Degler, R. H., Forest Mgmt. Advisor, Mo. Cons. Comm., Jefferson City, Mo.; Purdue Univ., B.S.F., 1933. (Junior, 1946.)
Jaeger, J., Jr., Dist. Forester, Mo. Cons. Comm., Camdenton, Mo.; Oregon State, B.S.F., 1941. (Junior, 1946.)
Johnson, H. E., Field Asst., Int. Paper Co., Sheridan, Ark.; Univ. of Idaho, B.S.F., 1939. (Junior, 1947.)
Kennedy, R. F., Dist. Forester, Crossett Lbr. Co., Crossett, Ark.; Univ. of Mich., B.S.F., 1942. (Junior, 1947.)
Ralston, J. G., Forester, Murphy Corp., El Dorado, Ark.; Pa. State, B.S.F., 1939; Yale, M.F., 1940. (Junior, 1947.)
Williston, H. L., Research Forester, Southern Forest Exp. Sta., Crossett, Ark.; Harvard, B.A., 1940; Yale, M.F., 1942. (Junior, 1946.)
Winger, H. S., Dist. Forester, Int. Paper Co., Malvern, Ark.; Purdue Univ., B.S.F., 1941. (Junior, 1946.)
Wishart, J. E., Dist. Forester, Crossett Lbr. Co., Crossett, Ark.; Univ. of Minn., B.S.F., 1941; Yale, M.F., 1946. (Junior, 1946.)

Puget Sound Section

Junior Grade

Bennett, S. M., Forester, U.S.F.S., Okanogan, Wash.; Oregon State, B.S.F., 1949.

Southeastern Section

Junior Grade

Dunn, R. W., Tbr. Cruiser, Macon Kraft Co., Macon, Ga.; A. P. I., B.S.F., 1949.
Haynes, J. A. Q., Tbr. Marker, Hollingsworth and Whitney Co., Mobile, Ala.; A. P. I., B.S.F., 1949.

Southern California Section

Affiliate Grade

Pyles, H. K., Forester, U.S.F.S., San Francisco, Calif.; Univ. of Calif., J.C., 1933.

Upper Mississippi Valley Section

Junior Grade

Erickson, P. E., Box 126, Jewell, Iowa; Iowa State, B.S.F., 1950.
Hertel, H. G., 1410 Burnett Ave., Ames, Iowa; Iowa State, B.S.F., 1950.
Larson, P. R., North Branch, Minn.; Univ. of Minn., B.S.F., 1949.

Member Grade

Ryan, J. C., Dist. Rgr., Minn. Div. of Forestry, Makinen, Minn. (Junior, 1946.)
Start, W. D., Chief Forester, Ontario-Minn Pulp and Paper Co., Kenora, Ontario, Can.; Univ. of Toronto, B.S.F., 1930. (Junior, 1945.)

Washington Section

Junior Grade

Quillinan, A. R., Forester, U.S.F.S., Washington, D. C.; Cornell Univ., B.S.F., 1929. Reinstatement.

Member Grade

Pierson, R. K., Chief, Dept. of the Interior, Washington, D. C.; Univ. of Mont., B.S.F., 1930; Univ. of Idaho, M.S., 1933. Reinstatement.

Wisconsin-Upper Michigan Section

Junior Grade

Decur, C. J., Surveyor, City of Wakefield, Gogebec Cty., Mich.; Mich. State, B.S.A., 1950.

Member Grade

Kolbe, R. M., Forester, Connor Lbr. and Land Co., Laona, Wis.; Univ. of Minn., B.S.F., 1937. (Junior, 1945.)
Limpert, C. E., Dist. Forester, Dept. of Cons., Lansing, Mich. (Junior, 1949.)
Steigerwaldt, E. F., Forester, Wis. Cons. Dept., Tomahawk, Wis.; Univ. of Mich., B.S.F., 1943; M.F., 1947. (Junior, 1946.)
Suominen, R. A., Forester, Cons. Water Power and Paper Co., Wisconsin Rapids, Wis.; Univ. of Idaho, B.S.F., 1942. (Junior, 1947.)
Switzer, A. L. K., Asst. Woods Mgr., Longlac Pulp and Paper Co., Ltd., Longlac, Ontario, Can.; Univ. of Toronto, B.S.F., 1934. (Junior, 1946.)

Candidates Elected

The following persons were elected to the indicated grades of membership by the Council on January 1, 1951.

Junior Grade

Anderson, R. F. (re)	Moore, W. R.
Bevan, J. S.	Norman, R. H.
Bullard, W. E. (re)	Parker, R. W.
Calhown, J. C. (re)	Patterson, H. E.
Canter, E. H.	Payne, H. H.
Cavanaugh, M. J.	Peterson, D. E.
Cech, G. O.	Pettey, J. R.
Corley, J. C.	Powell, D. H.
Cox, R. L.	Ralston, J.
Davison, A. T.	Raum, H. R.
Dickinson, F. L.	Rave, R. A.
Dronzek, J. J.	Ray, P. L.
Einspahr, D. W.	Ritchey, W. A.
Ellis, C. W.	Rogers, J. W.
Gallaher, W. B.	Sanderson, W. J.
Grafton, C. F.	Saunders, R. C.
Graham, E.	Schmitt, R. H.
Grimes, P. D.	Seamount, D. T.
Hallberg, R. K.	Searcy, W. H.
Hammarstrom, C.	Slusher, E. C.
Herstine, R. B.	Spencer, R. W.
Hicks, N. M.	Stokes, J. M.
Huffman, P. W.	Tucker, J. J.
Ince, G. A.	Vandershule, T. D.
Johnson, G. L.	Venema, W. J.
Judd, H. P.	Whitt, T. W.
Keller, W. C.	Wilson, J. S. (re)
Millers, A. W.	Wilson, R. M.

Member Grade

Runkel, S. T.	Wood, R. A. (re)

Affiliate Grade

Welch, H. E.	Wright, L. Q.
Weselsky, J. W.	

New Members and Advancements

The new members and members who have been advanced in grade who are listed below are eligible for participation in activities of the Society of American Foresters, including the meetings and projects of Sections, Chapters, Divisions, and Committees. They have submitted their applications for membership, properly endorsed, and have been declared eligible by the Council. By accepting election, these members have indicated their desire to assist the Society in the fulfillment of its objectives.

Allegheny Section

Junior Grade

Cumming, J. A., N. J. Forest Fire Service, Mays Landing, N. J.
Lane, H. M., 321 E. Weber Ave., DuBois, Pa.
McNamara, E. F., 124 W. Gorgas Lane, Phila., Pa.
Salt, A. A., American Lbr. and Treating Co., Baltimore, Md.

Appalachian Section

Junior Grade

Harrison, S., U.S.F.S., Franklin, N. C.

Central States Section

Junior Grade

Anderson, M. G., Box 33, Benton, Ill.
Black, R. S., 10019 S. Prospect Ave., Chicago, Ill.
Colgrove, W. H., 3221 S. Main St., Elkhart, Ill.
Shipman, R. D., 5391½ M.A.C. Ave., E. Lansing, Mich.
Voyles, R. L., Box 77, Butlerville, Ind.

Member Grade

Glesne, N. G., 405 E. Market, Havana, Ill.
Siemert, H. F., Box 109, Buffalo, Ill.

Columbia River Section

Junior Grade

Apperson, A. J., 239 N. 8th St., Corvallis, Oreg.
Finley, J. A., Fall Creek Rgr. Sta., Lowell, Oreg.

Member Grade

Berg, A. B., 2600 State St., Salem, Oreg.

Gulf States Section

Junior Grade

Beal, R. L., 120 W. Court, Brookhaven, Miss.
Lewis, R. F., 4330 W. Beach, Gulfport, Miss.
Mixon, J. E., 1916 Mulberry St., Baton Rouge, La.
Moore, L. J., 23½ W. Lee St., Sardis, Miss.
Walters, H. L., Box 691, Jena, La.

Associate Grade

DeWeese, T. A., Box 359, Philadelphia, Miss.

Intermountain Section

Junior Grade

Hubbard, R. L., Utah State Agric. College, Logan, Utah.
Woolley, J. T., Utah State Agric. College, Logan, Utah.

Kentucky-Tennessee Section

Junior Grade

Fox, J. A., 701 8th St., Etowah, Tenn.

New York Section

Junior Grade

Anderson, G. L., 30 Main St., Saranac Lake, N. Y.
Brownworth, F. S., Jr., 45 Park Ave., Mt. Vernon, N. Y.
Ter Bush, F. A., Jr., 306 Marshall St., Syracuse, N. Y.
Villesvik, J. U., 34 Crestwood Rd. Port Washington, N. Y.

Northern California Section

Junior Grade

Minato, A. E., U. S. Army, Travis Air Force Base, Calif.

Associate Grade

Hanna, R. T., Western Fire-Weather Coordinator, San Bruno. Calif.

Northern Rocky Mountain Section

Member Grade

Godfrey, H. W., U.S.F.S., Seeley Lake, Mont.

Ozark Section

Junior Grade

Erwin, H. K., Jr., 8 McBaine, Columbia, Mo.

Puget Sound Section

Junior Grade

Manzer, N. R., Beaver Cove, B.C., Can.
Sorgenfrei, S. J., Rt. No. 4, Snohomish, Wash.

Southeastern Section

Junior Grade

Bray, I. L., 391 Macon St., Jesup, Ga.
Crooke, D. E., Ellijay, Ga.
Ellington, J. E., Box 224, Soperton, Ga.
Manning, R. W., Box 104, Greenville, Ga.
Martz, T. B., 8951 Adams Ave., Jacksonville, Fla.
McClurkin, D. C. 4435 Melrose Ave., Jacksonville, Fla.
Moody, J. R., Jr., Box 322, Homerville, Ga.
Prince, W. L., Box 444, Athens, Ga.
Sykes, J. E., 423 E. Jerger St., Thomasville, Ga.
Turpin, D. H., Box 225, Century, Fla.
VanCleef, E. B., 1310 Palmer St., Orlando, Fla.

Upper Mississippi Valley Section

Junior Grade

Aultfather, W. A., Beaver Bay, Minn.
Brabham, W., Estherville, Iowa.
Brown, K., 646 N. Minnesota, Algona, Iowa.
Spangler, J. E., Rt. No. 1, Littlefork, Minn.

Washington Section

Junior Grade

Prater, L. J., 1517 Arthur Drive, Falls Church, Va.

Wisconsin-Upper Michigan Section

Junior Grade

Holt, G. G., Griffith State Nursery, Wisconsin Rapids, Wis.
Stewart, R. B., c/o Cons. Dept., Hayward, Wis.
Pearson, M. W., 2912 N. 79th St., Milwaukee, Wis.
Rieck, C. E., State Rgr. Sta., Hayward, Wis.

Associate Grade

Kuntz, J. E., Dept. Land Path., Univ. of Wis., Madison, Wis.

Forestry was first offered at the University of Maine on a professional basis in 1903 instead of 1902, as was stated in the November JOURNAL, according to Professor R. I. Ashman. Although four foresters were graduated in 1906, the professional forestry course was not established by the legislature of the state of Maine until September 1903.

Forestry News

Raymond E. Marsh Retires
Edward C. Crafts, Successor

After 40 years of continuous service in the U.S. Department of Agriculture, Raymond E. Marsh, assistant chief of the Forest Service, retired on December 31, 1950. Mr. Marsh has served as assistant chief of the Forest Service since 1936. He has advised Chief Forester Lyle F. Watts in economic and legislative matters affecting forestry in the United States.

Mr. Marsh is succeeded by Edward C. Crafts, who has been chief of the Division of Forest Economics since August 1945. As division head, he has had technical supervision of the nationwide Forest Survey which includes a state-by-state inventory of standing timber and an estimate of timber consumption and requirements. His division has carried on research in forest taxation, credit and insurance, foreign forestry, problems of forest ownership, forest cooperatives, marketing, distribution of forest products, and related matters.

As a pioneer in the development of forest research, Mr. Marsh, supervised the national Forest Survey and forest taxation studies. He provided leadership for a number of national programs, including the 1945-46 reappraisal of the forest resources of the United States. He had the responsibility of carrying on a continuing review of the nation's forest, range, and watershed resources and of evaluating the effect of changing economic, social, and security conditions on these resources.

During World War II, Mr. Crafts prepared reports on lumber production for the War Production Board. Prior to the war he was employed for four years as a forest ecologist at the California Forest and Range Experiment Station in Berkeley, and for four years at the Southwestern Forest and Range Experiment Station in Tucson, Ariz. At these stations, he conducted studies in land use, employment, range utilization, and requirements for forest products.

Mr. Crafts is a native of Chicago, Ill. He has been employed by the Forest Service since April 1, 1934. He attended the University of Michigan, receiving a Ph.D. degree in forestry in 1942.

Northwest Wood Products Clinic

The Northwest Wood Products Clinic is a nonprofit association of lumbermen, educators, research men, and officers of public agencies which meets annually to study problems and discuss information of current interest pertaining to utilization of wood. The Clinic is sponsored by the Division of Industrial Services of the State College of Washington and the Timber Products Bureau of the Spokane Chamber of Commerce.

April 10 and 11 are the dates of the sixth annual meeting at the Davenport Hotel, Spokane, Wash.

The theme of the meeting will be greater profits through better manufacturing and utilization of waste. The Inland Empire Section of the Forest Products Research Society is cooperating this year for the first time in formulating the program. A place on the program is being kept open for any pertinent information which may develop from the present international situation. Displays of recent technological developments related to the general theme are being planned. As in the past, the list of speakers will include outstanding men from the Northwest and the country at large.

All members of the Society are welcome.

Georgia Bankers Back Reforestation Project

Earle Cocke, president of the Fulton National Bank, Atlanta, Ga., has announced that the Georgia Bankers Association will put its full weight behind a program to reforest 2.5 million acres of non-productive timberland in the state.

The Association's first objective is to have each of its 250 member banks purchase at least one tree planting machine and make it available without charge to local landowners. Several banks already have their machines and are scheduling three planting demonstrations.

Working with the association are all of the major railroads in the state, several large newspapers, Southern Pulpwood Conservation Association, Georgia Forestry Commission, Georgia Extension Service, U.S. Forest Service, and Tennessee Valley Authority. Governor Talmadge has pledged his cooperation.

New Water Measuring Instrument

Dr. E. A. Colman, soil scientist in charge of watershed management research at the California Forest and Range Experiment Station has been granted a patent on a new instrument for measuring water in the soil. The patent has been assigned to the U. S. government.

The instrument can be used in studies of water use by plants, for measurements of the direction and rate of water movement in the soil, and for the detection of freezing and melting of soil water. To agriculture, it offers a means for automatic control of irrigation.

The instrument consists of two electrodes made of monel metal screen, separated by fiberglas fabric and encased in a perforated monel envelope about 1 inch square and ⅛-inch thick. It is to be buried in the soil and connected to an ohmmeter, which measures resistance to an electric current flowing between the electrodes. As soil moisture increases, the resistance decreases; and hence the meter readings can be used to determine the amount of water in the soil.

This device makes possible the measurement of soil moisture content from air-dryness to saturation; it can be left in the soil for long periods of time without deteriorating; it responds promptly to changes in soil moisture and thus makes possible closely spaced or continuous measurements.

The Nation's Wood Supply

A new publication, *The Nation's Wood Supply*, prepared by American Forest Products Industries, Inc., describes the condition of America's forests, what has been done, and what is being done to assure ample supplies of wood for future generations.

The 22-page illustrated booklet points to the development of effective programs for all timberland owners. After an analysis of all the factors which affect the nation's wood supply, the publication concludes that current trends in forest management, protection, and utilization assure increasing wood supplies for the future. The cooperation of public and private agencies is closing the gap between wood removal and wood growth.

Forest Service Report Stresses Private Forestry Gains

Stressing the need for continued cooperation between federal and state governments and landowners in the development of forestry programs, Lyle F. Watts, chief, U. S. Forest Service, in his annual report declared that private forestry has made notable gains during the past 10 years.

The report points out that three-fourths of the commercial forest land in the United States is privately owned and that the nation must look to private landowners for the bulk of their production.

Mr. Watts believes that the future of forestry in the United States depends in large measure on the action taken by several million small owners who have most of the privately owned commercial forest land. He contends that these owners of small woodlands need more assistance from state and federal governments and private industry.

The chief forester emphasized the multiple uses of forest land. Forests support major industries, are a basic source of employment for several million people, and furnish raw materials for thousands of commodities. Forests also help safeguard vital water supplies, reduce disastrous floods, and provide valuable recreational areas.

Tree planting has expanded greatly since the war. Forty-one states now have nurseries operating under the cooperative tree planting program authorized by the Clarke-McNary Act. These nurseries produced more than 300 million trees in 1950, making them available to private landowners at low cost.

Private industry is also taking an active part in the reforestation program. The "tree farm" program, started on the West Coast in 1942, now operates in 28 states under sponsorship of American Forest Products Industries, Inc. Participating landowners, who own about 6 percent of the country's private commercial forest land, agree to follow specified forestry practices.

Pulp and paper companies of Wisconsin conduct a Trees for Tomorrow campaign to stimulate more tree planting, and pulp and paper producers in the South have distributed thousands of trees free of charge.

Even so, the annual report states that tree planting moves ahead too slowly. Seventy-five million acres of commercial forest land in this country are poorly stocked or deforested. Most of this area needs planting. To reforest this area at the present rate of planting would require at least 120 years.

The chief forester also sees a need to extend technical forestry assistance to many more landowners, particularly to those who own small woodlands.

Under the Norris-Doxey Act, some 220 technically trained foresters last year gave on-the-ground assistance to private owners of woodlands in nearly 1,000 counties. Since the program started in 1940, farm foresters have assisted more than 100,000 individuals who own nearly 11 million acres of woodland. There are, however, insufficient farm foresters to meet the demand for technical aid. At the end of fiscal year 1950, more than 4,500 requests for assistance remained unfilled.

The report reveals that 43 states and Hawaii participated last year in the cooperative fire control program under the Clarke-McNary Act. The forest area under organized fire protection has doubled since 1925. Of the 426 million acres of state and private forest and watershed land in need of protection from fire, approximately 83 percent is now under some degree of organized protection.

In spite of these gains, however, Mr. Watts declared there is urgent need to extend organized fire protection to 70 million acres of forest and watershed not now receiving protection. Approximately two-thirds of this unprotected forest land is in the Gulf and Southeastern states and includes some of the nation's most productive forests.

The report states that insects and disease are often more important than fire as a destroyer of timber, and that forestry agencies are waging a constant battle against these enemies of trees. Two important insect control projects of 1950 were the aerial dusting of 940,000 acres of Douglas-fir in Oregon to control the spruce budworm and the hand spraying of 800,000 Engelmann spruce trees in Colorado to destroy beetles.

Mr. Watts reports that the timber cut on the 151 national forests during fiscal year 1950 amounted to 3½ billion board feet. Receipts from national forest timber sales totaled $30,714,292, an average of $8.77 per thousand board feet as compared with $7.69 per thousand board feet during fiscal year 1949.

The report states that additional logging roads are needed for the harvesting of inaccessible stands of mature timber on national forests. The building of necessary access roads would permit the Forest Service to increase its annual timber sales by approximately 2 billion board feet a year and, at current stumpage prices, would bring into the Treasury more than $15,000,000 a year indefinitely.

Mr. Watts also points out that present mining laws permit individuals to control a great amount of valuable timber on national forests. Approximately 76,000 recorded mining claims cover 1,800,000 acres on western national forests. The area covered in these claims support an estimated 7 billion board feet of timber worth $58,000,000.

"On many mining claims," the report states, "the timber values far exceed the estimated value of the minerals, and some claimants use the mining laws as a guise to obtain title to the timber."

Lumber Buyers' Guide

The West Coast Lumbermen's Association has announced the publication of its January 1, 1951 *Where to Buy*. This directory of members of the association is designed to aid buyers of Douglas-fir, West Coast hemlock, Sitka spruce, and western red cedar. Detailed information is given on sawmills, remanufacturing plants, timber fabricators, a wood pipe and tank manufacturer and wood treating plants in the Douglas-fir region of western Washington, Oregon, and northern California.

New member mills total 66 since the 1950 edition and their listing along with the changes in the previous members will give lumber buyers the latest information on mill locations, officials and sales offices, capacities, facilities and products manufactured.

Copies of this lumber buyers' guide are available without charge from the West Coast Lumbermen's Association, 1410 S. W. Morrison St., Portland 5, Ore.

Colorado A & M Changes Division to School

Effective December 22, 1950, the School of Forestry and Range Management became the new designation for what had formerly been a Division of Forestry and Range Management at Colorado Agricultural and Mechanical College, Fort Collins.

According to Dr. J. Lee Deen, dean of forestry, the change in name does not affect the status of forestry and range management instruction, but more correctly informs the public of the actual academic status.

All Lands in Everglades National Park Land Acquired

With the acquisition of 125,000 acres of private lands in Florida's Everglades National Park, all the lands within the boundaries now defined for the park have been acquired. The new acquisition brings the total area to 1,210,000 acres.

Beginning in 1944, the state had by a series of deeds donated to the federal government title to an estimated 450,000 acres of uplands and 400,000 acres of submerged lands, including the Florida Bay area of the park. In addition, in 1947, the state donated the sum of $2,000,000 to acquire all the privately owned lands within the present park boundaries, which were established by the Secretary of the Interior in 1944, and to pay the expenses incidental to their acquisition.

In purchasing land for the park, contracts were made direct with the owners whenever possible. In this way, some 235,000 acres were acquired. The remaining 125,000 acres, just acquired, represent lands on which price agreements could not be reached, and for which it was therefore necessary to resort to condemnation. In the latter part of November the Department of the Interior took the final step in the condemnation proceedings when, through the Department of Justice, it filed a declaration of taking to the 125,000 remaining acres. The declaration, filed in the United States District Court in and for the Southern District of Florida, placed these lands in federal ownership. For each tract there has been paid into court by the Department of the Interior a sum called the "estimated just compensation," to reimburse the owners for the land condemned. The total so deposited is $320,459.

Under existing law, owners of lands transferred to federal ownership may retain oil, gas, and mineral rights for limited periods.

Although the recent acquisition completes the area within the present boundaries of the park, under existing Congressional authority additional lands may be added thereto until the maximum boundary described in 1930 by former Secretary of the Interior Wilbur in his report to the Congress is reached. Should any of the $2,000,000 donated by the State of Florida remain after payments are completed on the lands just acquired, it may be applied to the purchase of additional lands within the maximum area of the park under this authorization.

Volume of Heavy Wood Waste At Southern Pine Sawmills

For every thousand board feet of lumber they cut, southern pine sawmills produce about half a cord of heavy wood waste, according to a study recently made at 16 pine mills in northern Louisiana and southern and central Arkansas. If the bark is removed before the logs are sawed, most of the waste is suitable for pulp chips.

The study, made by R. D. Carpenter of the Southern Forest Experiment Station in cooperation with the Southern Kraft Division of International Paper Company, found that the diameter of the logs being sawed influenced the amount of waste more than did size or equipment of the mill.

In all mills, the larger the log the less the waste per thousand board feet of lumber sawed. The average amount of waste suitable for pulp chips increased more or less regularly as log diameter decreased. Thus logs 23 inches in diameter produced about 0.3 cord of waste per thousand board feet (green lumber tally) of lumber sawed, while 6-inch logs had about .08 cord of waste per thousand feet of lumber.

A detailed report of the study, including directions for using the results to calculate waste production at any southern pine mill, has been published as Occasional Paper 115 of the Southern Forest Experiment Station, New Orleans. Copies may be had on request to the station.

Wind Damage in Adirondacks

Preliminary and incomplete surveys by the N.Y. State Conservation Department reveal that there may be enough windfelled trees in the Adirondacks as a result of the November 25 land hurricane to supply every pulp mill in the state for two years and to build the equivalent of 4,000 5-room frame houses as well. Losses may run as high as 2 million cords of softwood and 40 million board feet of hardwood on a quarter-million acres, about half of which is State Forest Preserve land.

Estimates are based on a preliminary reconnaissance by air and ground crews of state rangers and foresters.

Estimates of wind damage to state public campsites alone have revealed the necessity for a minimum $100,000 expenditure, conservation officials say, to get them cleaned up in time for use next summer. In addition, $45,000 will be required to put forest fire towers and telephone lines, truck trails, and other forest fire protection facilities back in working order.

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International Union for the Protection of Nature Meets

Thirty-four countries were represented at the second general assembly of the International Union for the Protection of Nature held in Brussels, Belgium, October 18 to 23. Organized in Fountainebleau, France, in 1948, with 72 founding member organizations, the Union is dedicated to area and species preservation on a world-wide basis and to international cooperation in the conservation and wise use of natural resources.

The past two years have served to give the Union an opportunity to chart its course, and a great deal has been accomplished on a modest budget and with assistance from UNESCO. One outstanding contribution was the International Technical Conference on the Protection of Nature held at Lake Success, New York, in August 1949.

Education, an active program in behalf of threatened species, study of international nomenclature with respect to the classification of areas, and publication of a world report on the status of nature protection in 1950 were highlights of the Brussels sessions. It was announced that four countries—Switzerland, Luxemburg, Netherlands, and Belgium—have adhered to the constitution of the Union. Applications of new organizations were approved, bringing the total to 115, including 18 in the United States.

Dr. Charles J. Bernard of Switzerland was reelected president and the Union voted to accept the invitation of the Venezuelan Government and hold its Assembly in Caracas in 1952.

Dr. Ira N. Gabrielson was named to head the Union's Commission on Conservation Education. Members of the United States delegation were Harold J. Collodge, Jr., vice-president of the Union, Victor H. Cahalane, C. Crane, H. W. Glassen, L. A. Walford, and Richard W. Westwood.

James McLachlan Bissell Award

Outstanding service in the cause of forest fire prevention or suppression in California will be recognized by the James McLachlan Bissell Medal to be awarded annually.

This medal is to be awarded by the trustees of the Harvey S. Bissell Trust to the person who in their judgment has during the preceding year most conspicuously earned recognition for outstanding service. It is to be awarded to any forest officer, fire guard, or other employee for unusual and outstanding service, or devotion to duty, or to any other citizen who by some act of heroism or intelligent action prevents or lessens damage to the forests or watersheds of California by fire or otherwise; or who safeguards the lives of those engaged in fighting forest or brush fires in California.

Nominations may be sent to any one of the trustees, or may be addressed to the Harvey S. Bissell Trust, W. S. Rosecrans, Suite 820, 1151 South Broadway, Los Angeles 15, California.

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Seventy Year Plantation

One of the most unique woodlots in southeastern Michigan is a 70-year-old hardwood plantation on the William Sommer farm north of Davidson.

Conservation department farm forester, Alfred Phillips, reports that 5 acres were planted in 1881 by Frank R. Catlin, when he was 22 years old. Stock consists of white and red oak, white ash, basswood, hard maple, and black walnut.

The largest walnut tree, over 73 inches in circumference and growing at the rate of 15 board feet annually, contains about 510 board feet of lumber.

The Genesee county plantation has averaged nearly 150 feet of growth per acre since 1881 and it has been protected except for a small edge used to shade livestock.

New Test Set for Solutions for Sapstain Control

The research department of Chapman Chemical Company, Memphis, Tenn., has developed a rapid method for accurately checking solutions made from Permatox 10S and Dowicides.

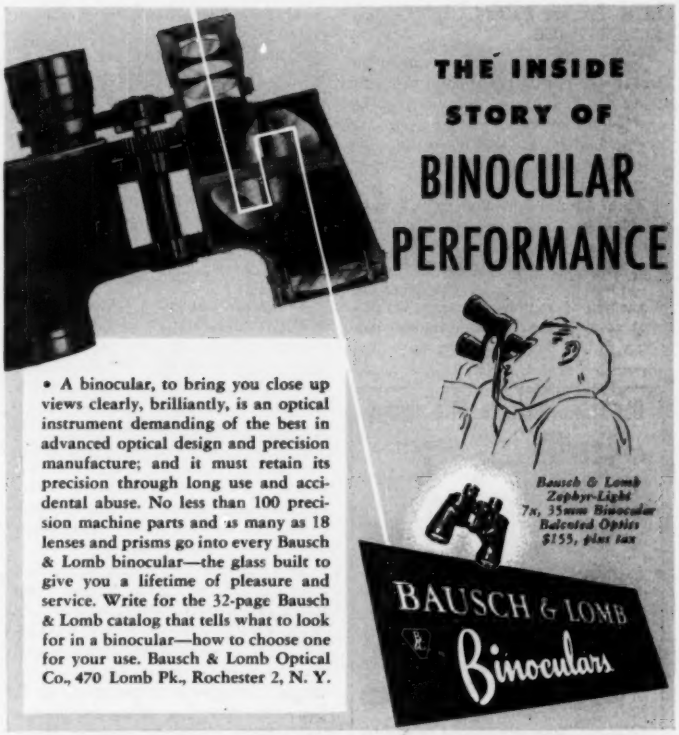
This is done with a testing set consisting of a special hydrometer, thermometer, and checking chart. Three simple steps are involved: First, a hydrometer reading is made on a sample of the solution taken from the dipping vat. Second, a temperature reading is made. Third, these readings are checked on the testing chart to determine strength of solution. Comparison with recommended strength tells whether solution is too weak or too strong.

Shaw Leaves Information Post

Robert W. Shaw has been appointed field representative for the North Carolina Chain Store Council.

Shaw, a native of Schenectady, N. Y. came to North Carolina in 1947 after receiving his master's degree in Journalism at Indiana University. Since this time he has been employed by the Department of Conservation and Development and was in charge of the Forestry Division's information and education program.

He is a 1939 graduate in forestry of Purdue University and prior to the war worked for the U. S. Forest Service. He is a member of the Society of American Foresters, the North Carolina Forestry Association, Sigma Delta Chi, profesional journalistic fraternity, and is past commander of the Cary Post of the American Legion.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BLM Timber Sales Total $371,000

Nearly $371,000 worth of sawtimber and other forest products was sold from public domain administered by the Bureau of Land Management, under authority of the Materials Act, during the first quarter of the fiscal year, 1951.

This figure representing all sales made from public domain other than the Oregon and California lands, during the period July 1 to September 30, 1950, in the seven Bureau of Land Management regions is nearly 90 percent as much as the total amount sold from public domain during the entire fiscal year 1950, Secretary Chapman stated.

A detailed report by region, showing the state, contract number, species, volume, appraised price per unit and total price received per unit and total price, sale date and contract date, are found in the *Quarterly Timber Sale Summary*, issued recently for the first time by the Bureau of Land Management.

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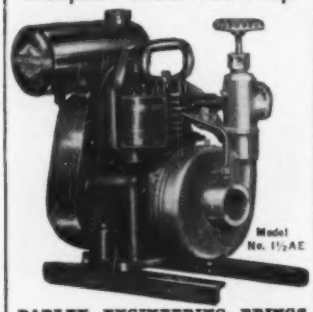

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Lumber Industry Advisors Named to Defense Agencies

The lumber industry has gained important representation in defense planning with the appointment of five prominent lumbermen as special consultants on lumber to defense agencies.

Harry T. Kendall, chairman of the board, Weyerhaeuser Sales Company, St. Paul, Minnesota, has been named as a special consultant to the Munitions Board, the Defense Department policy group which coordinates the procurement, production, and distribution plans of the military services.

The National Production Authority, economic control agency of the Commerce Department, has appointed four lumbermen as advisors on forest products. These consultants, who assumed their duties December 4, are C. A. Bruce, executive vice president, E. L. Bruce Lumber Co., Memphis, Tenn.; Swift Berry, formerly manager, Michigan-Californin Lumber Co., Placerville, Calif.; John Camp, Sr., Camp Mfgr. Co., Franklin, Va. and Charles W. Ingham, Fischer Lumber Co., Marcola, Oregon. They will advise the Forest Products Bureau of NPA on all matters affecting lumber, particularly with regard to establishing effective cooperation between industry and government.

Pennock Joins Thureson Company

Gilbert Pennock has been named logging superintendent for the Thureson Lumber Co., Howell, Michigan. He had formerly been with the Mt. Emily Lumber Co., La Grande, Oreg.

The Thureson Co. operates in hardwood timber in southeastern Michigan chiefly in farm woodlands. Most of the company's logging is done on a selective basis on tracts ranging from 20,000 to 200,000 board feet. The company employs ten graduate foresters in such capacities as general manager, timber buyers, cruisers, yard foremen, scalers, and administrators. It cooperates with state agencies in the purchase of marked timber, and its logging operations have been untilized by Michigan State College forest utilization students.

Program for Louisiana Schools

Louisiana's school children received their first taste of an organized forestry education program in the fall of 1950.

Outline for the program is a teacher's manual prepared jointly by the Louisiana Forestry Commission, the State Department of Education, and Louisiana State University.

Written by eight teachers, the 112-page book, entitled "Behind the Curtain of Green," outlines a forestry education program for grades one through twelve. For the past three years, the subject has been a part of the fifth grade curriculum in selected Louisiana schools.

Central theme is the development of an appreciation for what trees and forests mean to the people of Louisiana. It emphasizes the absolute dependence of many sections of the state on forests. (Fifty-six percent of the state's land is forested.)

The book was edited by Ralph T. Wall, youth program forester for the Louisiana Forestry Commission and Robert E. May, former high school supervisor for the State Department of Education.

Park Service Installs New Radio Stations

Three new remotely controlled two-way radio control stations, which on intermittent operation are capable of 5-kilowatt output, were purchased by the U.S. Department of Interior for the National Park Service, and have been installed near Olympic National Park in Washington. The stations have a continuous power output of 3 kilowatts.

Built as repeater stations, the units form communication links between Port Angeles, Wash., and park rangers in 2-way radio-equipped cars or trucks, or carrying portable radiophones.

Any incoming signal on one of the frequencies used will automatically activate the 3-KW transmitters from which the signal will be rebroadcast. The high power station is built by Motorola Inc. in three individual cabinets to facilitate ease of handling and maintenance.

Ecologists' Union Becomes The Nature Conservancy

A new name, The Nature Conservancy, has been adopted by the Ecologists' Union, in a move to eliminate confusion in the public mind regarding the word "union" and to distinguish the organization from the Ecological Society of America.

Johnson Retires; Hessel, Information Chief

Joseph N. Hessel has been appointed chief of the Division of Information and Education in the Rocky Mountain Region, U. S. Forest Service at Denver, Colo.

Mr. Hessel, who has been assistant in the Division of Information and Education in the regional headquarters in Ogden for the past five years, started his career in the Forest Service in Colorado where he worked on the Arapaho and Rio Grande National Forests. His later Forest Service experience includes several years in Montana where he worked on national forests and with the Northern Rocky Mountain Forest and Range Experiment Station on timber surveys. He also worked in West Virginia and at Washington, D. C. headquarters prior to his recent intermountain assignment. He succeeds Fred R. Johnson who is retiring after 39½ years' service.

Johnson entered the Forest Service in 1911, at Fraser, Colo., as forest assistant on the Arapaho National Forest, following his graduation from Yale University. In 1912 he was transferred to the Nebraska National Forest and was in charge of nursery and reforestation work there, later serving as supervisor.

JOSEPH N. HESSEL

In 1916 Johnson transferred to Denver as chief of reforestation and nursery work in the Rocky Mountain region. After 1929 he served as assistant chief of the division of recreation, lands, and public relations, becoming chief of the information and education division in 1937.

Wood Preservers Annual

The 1950 issue of the annual Proceedings of the American Wood-Preservers' Association is available from the office of H. L. Dawson, secretary-treasurer of A.W.P.A., 839 Seventeenth St., N.W., Washington 6, D.C. A feature of this years 587-page volume is a 10-year index, for the years 1940 to 1949.

The book contains committee reports, contributed papers, and resultant discussion presented at the association's annual meeting held in Houston, Texas, last April.

Revised treatment specifications were proposed in committee reports, and were acted on by the meeting, including specifications applying to pressure impregnation of lumber and timbers, piles, poles, posts, and railroad ties, and the non-pressure treatment of incised pole butts.

Carl M. Ewing Retires

Carl M. Ewing, forest supervisor of the Umatilla national forest at Pendleton, Oreg., retired December 31 after more than 30 years as a federal forester.

Ewing started with the forest service on the Fremont National Forest in southeastern Oregon in 1907.

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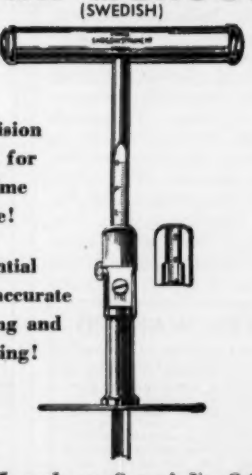

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Korean Forest Conditions

When war-torn Korea is rehabilitated, the U. S. Forest Service will be able to supply considerable information concerning forestry techniques that might profitably be applied there.

The Forest Service has for many years compiled information on forests and forestry in foreign countries, including the Far East. More recently, much information on the forest situation in Korea has become available through American foresters assigned to duty there with U. S. Military and economic missions.

Among those who have contributed valuable first-hand information is Maxwell E. Becker, a member of the staff of the Forest Service Experiment Station at Columbus, Ohio. Mr. Becker was born in Korea of American missionary parents and is familiar with the language, customs, and forest conditions of the country.

Prior to the Communist invasion of South Korea, eight Forest Service specialists had served as consultants in South Korea under the U. S. military government and under the ECA program.

Stanley Wilson, former associate regional forester of the Lake States Region went to Korea in August 1946 as chief advisor to the South Korean Bureau of Forestry, with headquarters in Seoul. He remained in Korea until June 1950 when he was evacuated to Japan.

Assisting Mr. Wilson in his work in South Korea were seven U. S. Forest Service men who served as consultants to South Korean provincial foresters. They were Gilbert Varney, Northeastern Forest Experiment Station, Upper Darby, Pa.; Philip Heaton, forester, Medicine Bow National Forest, Laramie, Wyo.; William H. Croke, forester, Kisatchie National Forest, Alexandria, La.; Dayton P. Kirkham, specialist in timber management, Parsons, Kans.; Hyman M. Goldberg, information and education division, Lake States Regional office, Milwaukee; Leonard H. Moore, forester, Chippewa National Forest, Minnesota; and Eugene Reichard, equipment engineer, Alexandria, La.

The Forest Service has also assisted in training six Korean agricultural leaders brought to this country in 1949 by the Department of State. They studied timber management, timber sales, nursery work, research, erosion control, and fire control. Two of them visited forest schools to examine curricula and observe teaching methods.

Dai Wi Lee, secretary of labor in the South Korean interim government from 1945 to 1948, has recently consulted with U. S. foresters in Washington. Mr. Lee hopes to initiate a program in Korea similar to the Civilian Conservation Corps.

Rocky Mountain Forester Assigned to Washington

Bert R. Lexen, of the Rocky Mountain Forest Experiment Station, Fort Collins, Colo., has been named assistant chief of the division of forest mangement research in the Washington office of the U.S. Forest Service.

For the past 11 years Mr. Lexen has headed forest management research work in Colorado, eastern Wyoming, and South Dakota. He developed a method of determining the volume of logs and standing trees by sample measurement for timber sales.

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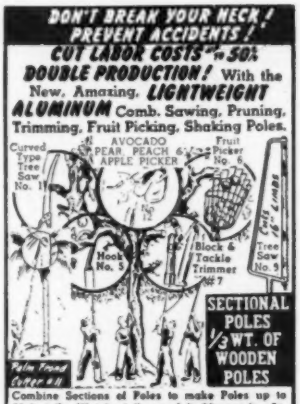
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Tree Farm Survey Report

The American Tree Farm System has "the goods on its shelves to back up its advertising," according to W. F. Ramsdell, Pack Foundation professor, University of Michigan.

On a sabbatical leave from the university to make a survey of America's Tree Farm acreage in order to determine the effectiveness of the movement in promoting and maintaining timber production, Professor Ramsdell gave a preliminary report of his work at the first national meeting of Tree Farm sponsors' representatives in Washington, D. C., Dec. 13. State foresters, forestry association executives, trade association foresters, and other officials from most of the 29 Tree Farm states took part in the meeting.

"Millions of Tree Farm acres are already getting more intensive forest management than is available to most of the publicly owned lands, and recognition of these accomplishments is gradually reaching the public," the professor reported.

Professor Ramsdell said he has found "a few, but amazingly few, and much less than expected, really bad spots" among the nation's 22,800,000 Tree Farm acres. He said that in every case but one there were local contributing circumstances and programs of correction under way.

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Halogeton, the rapidly spreading stock-killing weed from southwestern Asia, can be curbed by preventing soil degeneration and by maintaining the vegetative cover on western range lands.

"Experiments and observations by Bureau of Land Management range managers have shown that halogeton cannot compete successfully with hardy grasses," according to BIM Director Marion Clawson. "If infested areas that are susceptible to successful reseeding are seeded with crested wheatgrass, for example, halogeton is choked out." Crested wheatgrass, he added, comes from the same general area as halogeton.

Halogeton—an annual—resembles its relative the Russian thistle, a "tumbleweed," and must get a fresh start each year. The tiny seeds find lodging wherever the native vegetation has been altered or broken, and on areas of high salinity or alkalinity where other plants do not thrive.

The weed's poisonous effect is caused by oxalates in the form of sodium and potassium salts that form insoluble crystals in the animals' kidneys. Sheep, especially, and other stock and wildlife are attracted to the plant in the fall and early winter, when they are hungry for salt and forage. Snow and rain soften the hard stems of the plant and make it more palatable.

While spectacular cases of poisoning readily come to the attention of ranchers and the public, said Clawson, it is only now becoming generally known that halogeton has a "time bomb" effect. Cumulative effects of poisoning will cause sheep and cattle to suffer from what appears to be malnutrition, and thousands of animals have been condemned as a result. In addition, a mild case of poisoning often causes abortion in livestock—another hidden economic loss resulting from halogeton infestation.

Halogeton, since its discovery in 1935 near Wells, Nevada (where it may have arrived in a shipment of grass seed from Asia) has spread to Utah, Idaho, Colorado, Wyoming, Montana, and California. The weed has been found on 250,000 acres of federal range, and is continuing to spread.

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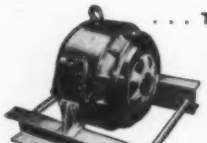

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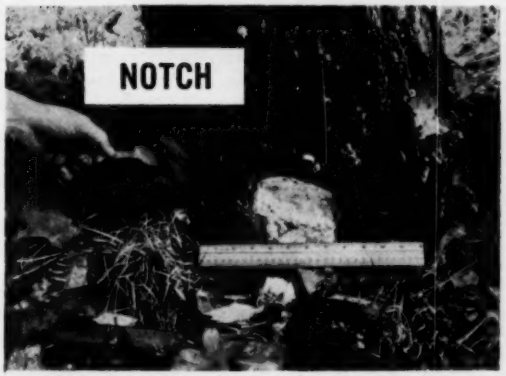

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Oregon Passes Million-Acre Pine Tree Farm Mark

Western pine tree farms in Oregon passed the million-acre mark in 1950 to lead all other states in the 12-state western pine region.

Ernest L. Kolbe, forester for the Western Pine Association, reports that eight new Oregon tree farms covering 155,620 acres—including one 84,855-acre tract of the Gilchrist Lumber Company—were certified during the year to bring the total number to 21 and total acreage to 1,063,127.

The entire region meanwhile added 29 others for a total acreage increase of 358,326, placing the regional total at 305 certified areas covering 3,722,312 acres.

Certification of 19 tree farms covering 165,505 acres gave Idaho the greatest 1950 increase and brought its total to 80 farms and 608,205 acres.

Six Washington certifications were made by the association's forest conservation committee for a total acreage of 9,528 and brought that state's grand total to 59 tree farms on 447,890 acres.

Other states included: California—three new tree farms for 23,161 acres, total, 97 tree farms, 670,416 acres; Montana—one new tree farm, 3,423 acres, total 47 tree farms, 852,675 acres; New Mexico—none new, total one tree farm, 80,000 acres.

Heads Utilization Service

Lincoln A. Mueller of the Northern Rocky Mountain Forest and Range Experiment Station, Missoula, Mont., has been promoted to the position of chief of the Forest Utilization Service for the Southwestern Forest and Range Experiment Station at Tucson, Ariz. In his new assignment, Mueller will head up the forest products and utilization activities for the Forest Service in New Mexico, Arizona, and eastern Texas.

Prior to coming to Missoula he was located at the Forest Products Laboratory, Madison, Wis., for five years as assistant in the Division of Wood Preservation.

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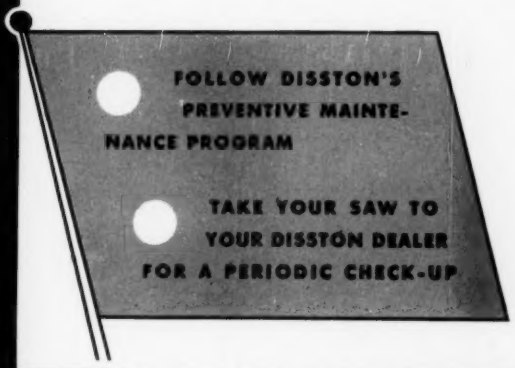

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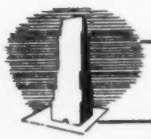

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